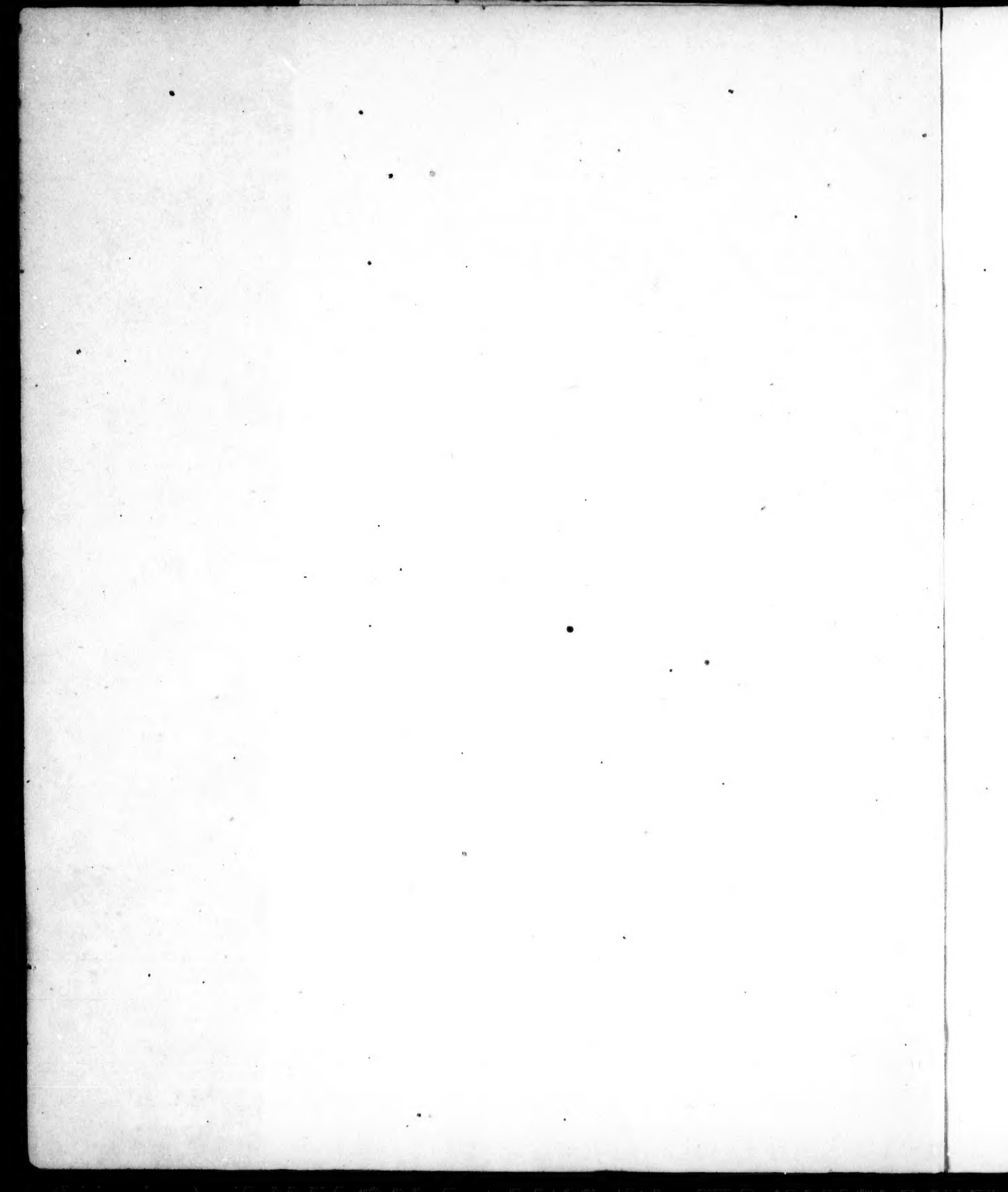




DOCUMENTS
RELATING TO THE CONTRACTS
— OF —
J. B. BERTRAND & CO.
WITH HER MAJESTY
In connection with Sections 9 & 15
— OF THE —
INTERCOLONIAL RAILWAY.

— — —
OTTAWA, FEBRUARY, 1877.
— — —

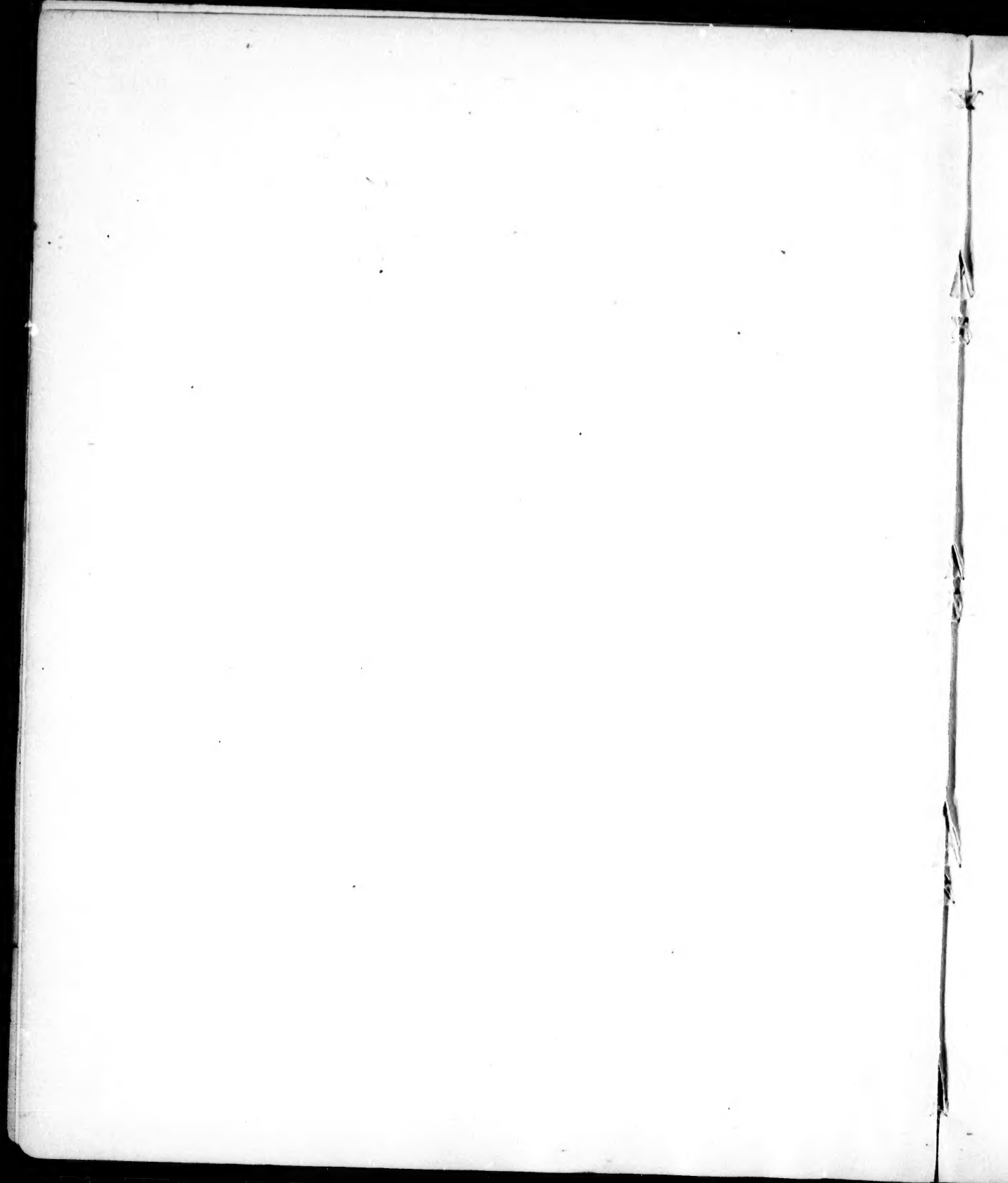
OTTAWA:
PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.
1877.



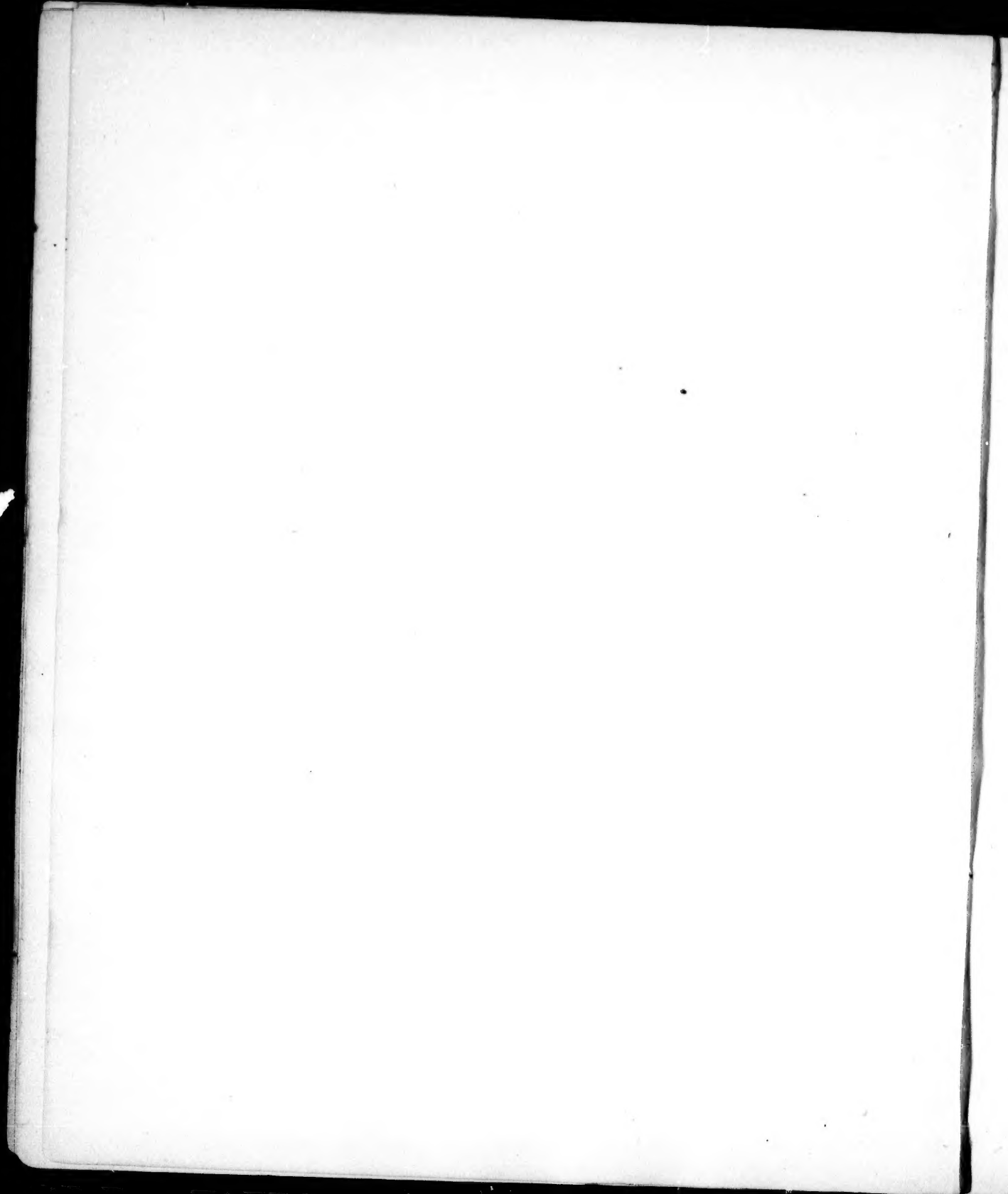


INDEX TO LETTERS.

No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
1	1	1869 Jan 5	J Ferguson.....	M Smith.....	Farm bridge and culvert.
2	1	Aug 9	S Fleming.....	".....	To prepare bill of works for contract 9.
3	2	" 30	M Smith.....	S Fleming.....	Explanations of bill of works, Contract No. 9.
4	3	Sept 3	S Fleming.....	M Smith.....	Asking for tunnel instead of arch Station 11, Contract 9.
5	3	" 28	C S Ross.....	".....	Error in printed quantities of Contract 9.
6	4	" 30	S Fleming.....	".....	Estimate of cost of Contract 9.
7	4	Oct 11	M Smith.....	S Fleming.....	Enclosing maximum and minimum estimate for Contract 9.
8	5	" 22	.....	.....	Report to Council of Commissioners on tenders, Contract 9.
9	5	" 25	C S Ross.....	J B Bertrand & Co.....	Profile and bill of works, Contract 9, sent
10	6	Nov 15	M Smith.....	F Bolger....	To get work set out on Contract 9.
11	6	" 16	".....	Z Fowler.....	To set out work, Contract 9.
12	6	" 20	J B Bertrand.....	M Smith.....	Asking can owners of land on line of railway prevent his using the timber cut thereon.
13	7	" 20	".....	".....	Going to work at once; asks to have work set out.
14	7	" 23	M Smith.....	J B Bertrand.....	Answer to Nos. 12 and 13, and instructions as to work.
15	8	" 24	".....	Z Fowler.....	Further instructions for setting out work.
16	8	" 30	S Fleming.....	M Smith.....	Appointments on Contract 9.
17	8	Dec 6	J B Bertrand.....	".....	Asking English copy of specification to be sent with profile
18	9	" 10	".....	".....	No instructions about work at Elm-tree, Contract 9.
19	9	" 16	S Fleming.....	".....	Instructions for preparing record and progress drawings, etc.
20	11	" 17	M Smith.....	J B Bertrand.....	Reply to letter No. 18, in reference to timber on the line of railway; and to letters 17 and 18.
21	12	" 28	J B Bertrand.....	M Smith.....	Acknowledging receipt of specification, profile and letter No. 20; asking for certificate for work done up to date on Contract 9.

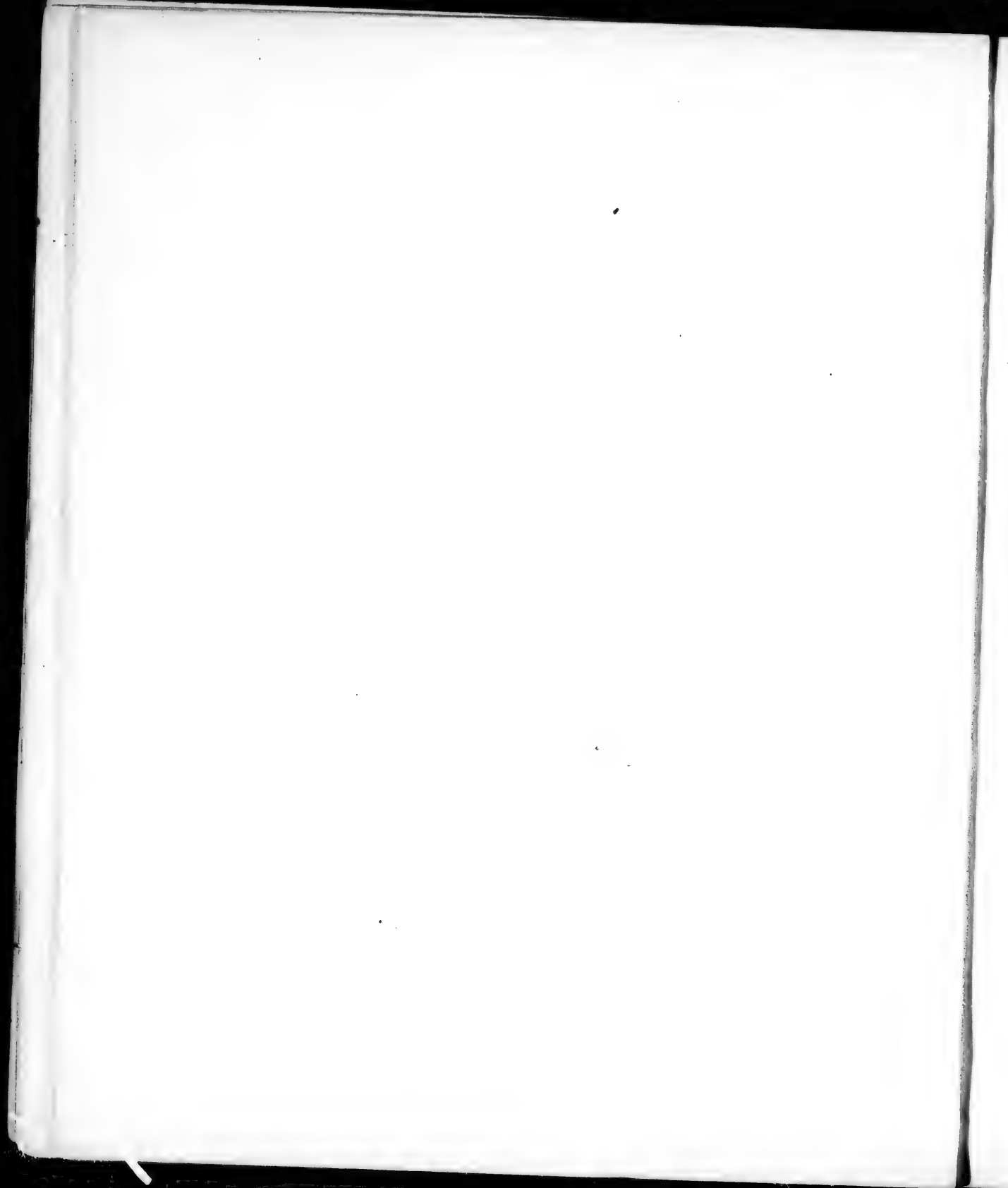


No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
22	13	1870 Jan 4	M Smith	J B Bertrand.....	Ought to apply to Secretary of Commissioners for certificate asked for in letter 21.
23	13	" 10	J B Bertrand.....	C S Ross.....	Asking for copy of the engineer's certificate, and a warrant for the amount.
24	13	" 13	S Fleming	M Smith.....	To make drawing of cattle guards for contractors.
25	14	" 18	Glover & Fry	C S Ross.....	Relating to power of attorney for receiving payments.
26	14	" 19	S Fleming	M Smith.....	Labor returns received.
27	14	" 20	M Smith.....	S Fleming	Answer to letter 26.
28	14	" 20	C S Ross.....	Messrs Bertrand.....	Amount of warrants applied for.
29	15	" 26	S Fleming	M Smith.....	Respecting cattle guards.
30	15	" 31	M Smith.....	S Fleming	" inclination on farm roads.
31	15	Feb 1	M Smith	S Fleming	" inclination on farm roads.
32	15	" 1	S Fleming	M Smith.....	Answer to No. 31.
33	16	" 10	M Smith.....	S Fleming	Sends quantities, &c., of Contract 15.
34	16	" 28	J B Bertrand.....	C Odell	Wants plan and specification of new style of fence. Asks if stone at Grand Anse, &c., be good.
35	16	March 3	C Odell	J B Bertrand.....	Answer to No. 34.
36	17	" 4	"	M Smith.....	Reports subject of No. 34.
37	17	" 5	C S Ross.....	J B Bertrand.....	Sends resolution of Commissioners about rates of progress on various sections.
38	18	" 5	J B Bertrand.....	Commissioners.....	Asks a statement of work done on Contract 9, and payment on account.
39	18	" 9	"	C Odell	Wants plans of certain bridges and culverts on Contract 9.
40	19	" 10	"	C S Ross.....	Replies to No. 37.
41	19	" 10	"	M Smith.....	Asking whether material on section is property of Government or contractor.
42	19	" 12	C Odell	J B Bertrand.....	Referring him to book of general plans of structure.
43	20	" 14	M Smith.....	C Odell.....	Respecting size of cedar rails.
44	20	" 17	"	S Fleming	Enclosing estimates of rates.
45	21	" 22	C S Ross.....	J B Bertrand.....	Replying to 38. February statement not received.
46	22	" 29	M Smith.....	C Odell	Enclosing revised schedule of prices.



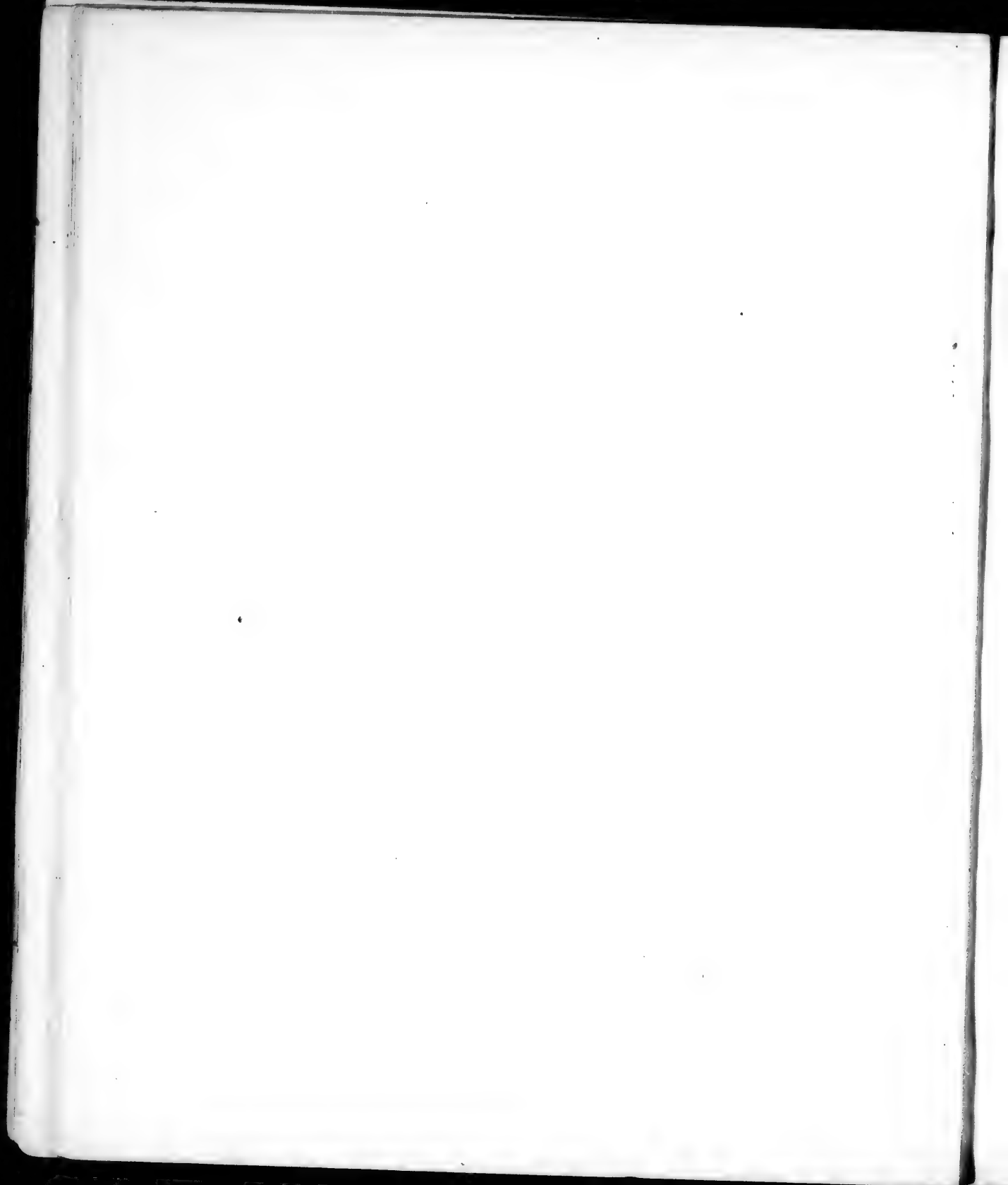
No.	PAGE	DATE	FROM	TO	SUBJECT MATTER.
47	22	1870 April 25	J B Bertrand.....	J McMillan	Respecting ditches at Station 778 and 910.
48	22	" 26	J McMillan	M Smith.....	Enclosing letter from Bertrand.
49	22	" 27	Commissioners	Railway Council	Recommending acceptance of Messrs. Bertrand's tender for Section 15.
50	23	" 28	E Lawson	M Smith.....	Agent wants work laid out.
51	23	" 28	M Smith.....	E Lawson	Keep contractor going with work.
52	23	May 11	Coun. of Privy Council.....		Recommending that Messrs. Bertrand's tender be accepted for Sec. 15.
53	24	" 12	C Odell	M Smith.....	Enclosing progress returns.
54	24	" 14	C S Ross.....	J B Bertrand & Co....	Notifying them of acceptance of tender for Sec. 15.
55	25	" 17	J B Bertrand.....	C S Ross.....	Acknowledging above. Memorandum of alterations.
56	26	" 23	"	M Smith.....	Wanting an engineer.
57	26	" 25	M Smith	C Odell	Wanting information as to works.
58	26	" 31	P A Peterson.....	S Fleming	Respecting brook culvert at 471.
59	26	" 31	S Fleming	M Smith.....	Relating to above.
60	27	June 3	C Odell	"	Enclosing estimates. No stone yet delivered.
61	27	" 8	J B Bertrand	C Odell	Wanting work laid out.
62	27	" 8	"	"	Wishing to have some one sent to inspect stone at Bandon.
63	28	" 8	A Sinclair	"	Has examined stone at Station 205; a small portion suitable.
64	28	" 16	J B Bertrand.....	C S Ross.....	No opportunity for employing emigrant labor.
65	29	" 16	P A Peterson.....	M Smith.....	Members of staff have arrived
66	29	" 20	J B Bertrand.....	C Odell	To send engineers to Nos. 805, 934 and 825
67	29	" 27	A L Sinclair	"	About 1,400 cubic yards at Grand Anse
68	30	" 27	P A Peterson.....	M Smith.....	Bertrand wants profiles of Sec. 15.
69	30	" 27	M Smith	P A Peterson.....	Replying to above Give him what he wants.
70	31	" 27	P A Peterson.....	M Smith.....	Has given Bertrand profile and will lay out work
71	31	" 29	J B Bertrand.....	C S Ross.....	Wanting profiles of Sec. 15, which were exhibited in different places
72	32	" 30	C S Ross.....	J B Bertrand.....	In reply, Commissioners allow one copy only.

No	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
73	32	1870 June 30	C Odell	M Smith	No stone yet delivered, but tug boat has arrived.
74	32	July 6	J B Bertrand	C Odell	Wanting information as to farm crossings.
75	32	" 8	P A Peterson	M Smith	Respecting work between Stations 297 and 348.
76	33	" 9	M Smith	C Odell	Respecting fencing.
77	34	" 9	"	"	Embankments made without allowance for subsidence.
78	35	" 11	"	J B Bertrand	Materials to be paid for before being used.
79	35	" 11	"	"	Requesting that Mr. Holmes may see and report on quarries where stone is being got.
80	36	" 11	M Smith	P A Peterson	Respecting alteration in grade between Stations 295 and 346.
81	36	" 11	P A Peterson	M Smith	Enclosing force returns. As to office.
82	37	" 13	J B Bertrand	"	Agent instructed to give Mr. Holmes facilities for inspection.
83	37	" 15	"	C Odell	Wanting plan of culvert, Station 737.
84	37	" 16	M Smith	P A Peterson	As to office in Bathurst. Record books wanted.
85	38	" 18	"	S Fleming	Relating to Holmes' inspection of stone :—far from satisfactory.
86	39	" 18	P A Peterson	M Smith	Engineers cannot lay out the uncleared portions of line till it is burned. Contractor wants a Masonry Inspector.
87	39	" 20	M Smith	C Odell	Mr. Fotheringham appointed Inspector of Masonry.
88	40	" 21	C S Ross	J B Bertrand	The Council have decided in favour of wooden bridges.
89	40	" 21	S Fleming	M Smith	No inferior stone allowed in work.
90	40	" 22	J B Bertrand	"	Wanting inspector at quarry on Bass River.
91	41	" 22	"	P A Peterson	Wanting cutting laid out Station 589; also, foundation of bridge on Nipissiguit River.
92	41	" 22	C Odell	M Smith	Respecting use of stones quarried in the tide; also, cement now on hand. Memorandum as to tunnel.
93	42	" 23	M Smith	C Odell	Respecting Holmes' report on stone at Grand Anse. The Chief Engineer insists on good stone.

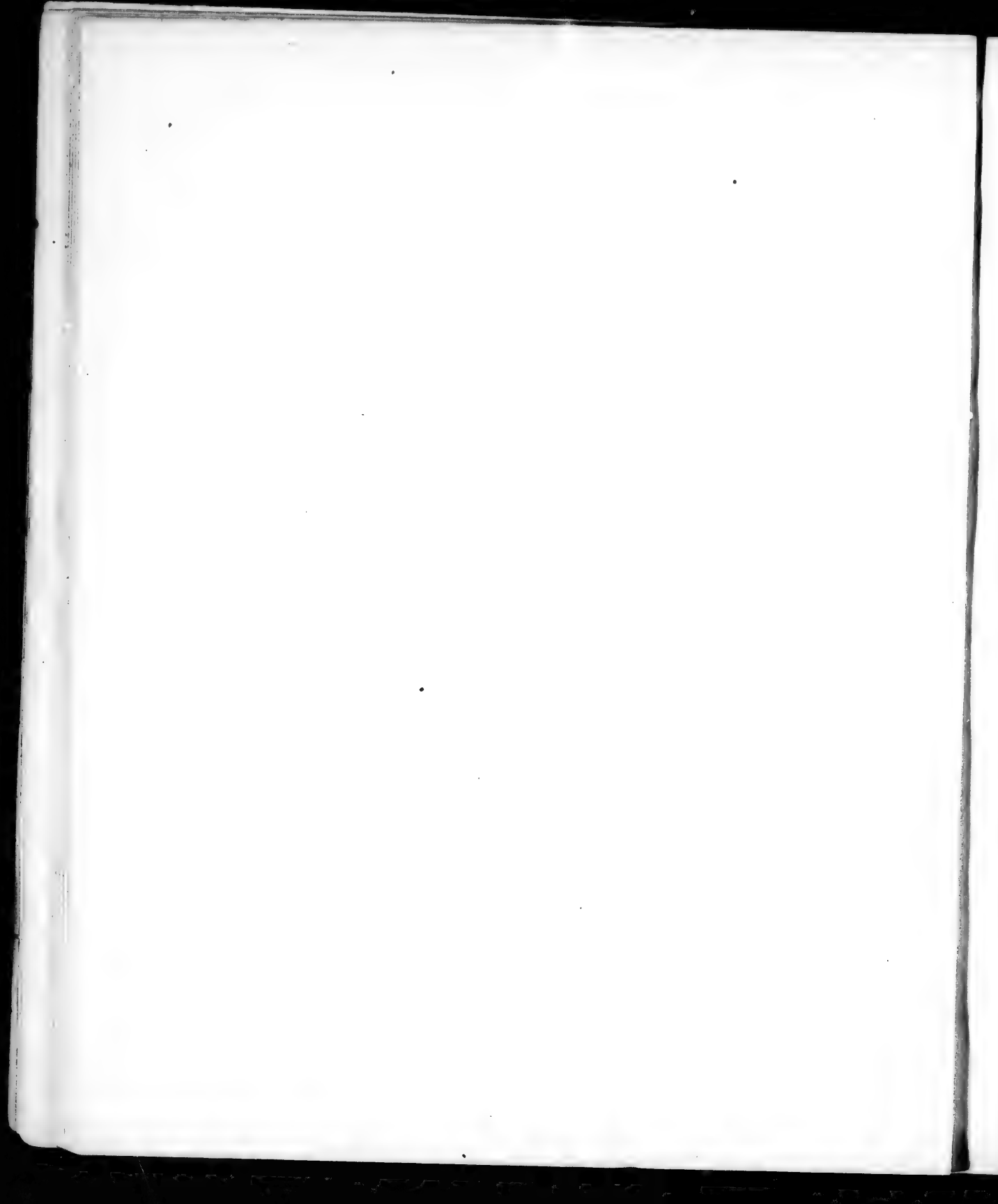


No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
94	43	1870 June 23	P A Peterson	M Smith	Giving results of visit to Bass River Quarry. The stone is good.
95	44	" 26	M Smith	P A Peterson	Respecting above.
96	44	" 27	"	C Odell	Wanting certificate. Fencing to be all taken down and re-erected. The cement condemned.
97	45	" 27	C Odell	M Smith	Mr. Fotheringham tried new cement, condemned as useless.
98	45	" 28	W E Blumhart	C S Ross	Acknowledging No. 86.
99	46	" 28	M Smith	C Odell	Respecting farm crossings.
100	46	Aug 1	P A Peterson	M Smith	Contractor has abandoned Bass River Quarry; stone too bad.
101	46	" 1	J B Bertrand	P A Peterson	Wanting plan of bridge at Big Nipissiguit River.
102	47	" 2	P A Peterson	M Smith	Respecting above.
103	47	" 3	M Smith	S Fleming	" "
104	47	" 3	"	P A Peterson	" "
105	48	" 4	J B Bertrand	"	Respecting diversion of stream, Station 471.
106	48	" 4	"	"	Wanting plan of bridge at Little River.
107	48	" 5	P A Peterson	M Smith	Respecting above.
108	49	" 8	"	"	Contractor getting stone for the Nipissiguit Bridge, 2 feet thick.
109	49	" 8	M Smith	P A Peterson	Replying to 107. Make plans required and send for approval.
110	50	" 9	P A Peterson	M Smith	Respecting same; also, giving work done to July.
111	50	" 10	M Smith	C Odell	Contractors allege that cement condemned in one place is allowed in another.
112	51	" 11	"	P A Peterson	As to size of stones for Nipissiguit Bridge.
113	52	" 12	C Odell	M Smith	Replying to 111. Sending samples.
114	53	" 15	P A Peterson	"	Acknowledging 112.
115	53	" 16	M Smith	C Odell	Acknowledging 113. Samples sent not promising. Bertrand will send to England in the spring for supply.
116	53	" 17	J B Bertrand	M Smith	Forwarding samples of cement;—former contained too much sand.
116	54	" 18	M Smith	J B Bertrand	Cement equal to sample may be used.
117	54	" 18	P A Peterson	M Smith	Respecting masonry.

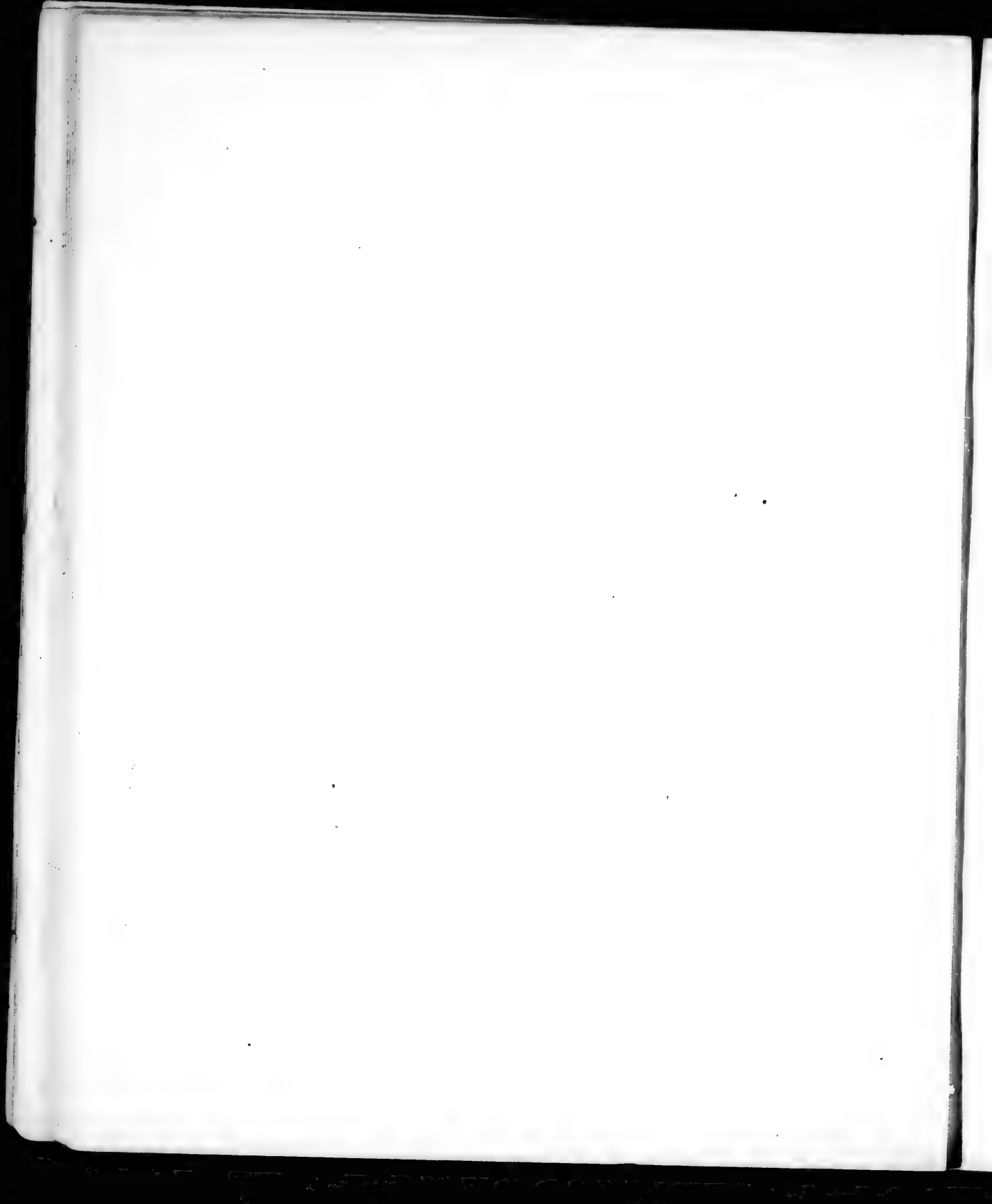
No	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
119	55	1870 June 19	J B Bertrand	The Commissioners	Office moved to Bathurst.
120	55	" 24	J Fry	Hon H Langevin	July estimates much under what they should be. Heavy preliminary expenses incurred.
121	56	Sept 2	J B Bertrand	C Odell	Respecting culvert at 221, Section 9.
122	56	" 3	S Fleming	M Smith	All progress reports wanted.
123	56	" 5	P A Peterson	"	Owner of land at 471 and 474 objects to proposed stream diversion.
124	56	" 5	M Smith	C Odell	Corrections in certificates.
125	57	" 5	"	S Fleming	Enclosing returns.
126	57	" 5	J B Bertrand	M Smith	Giving statement of preliminary expenses incurred, \$35,400, and making arrangements for getting out and transporting stone, etc.
127	58	" 7	J B Bertrand	M. Smith	Addendum of paragraph to foregoing.
128	59	" 13	P A Peterson	"	Respecting culvert at 472.
129	59	" 15	S Fleming	"	Respecting iron pipes.
130	60	" 20	The Commissioners....	Council	Respecting complaints of contractors as to insufficient estimates, and explanation of system on which estimates are made up.
131	60	" 20	W H Lee	The Commissioners	Extract from report of Committee P. C. advising that recommendations of Commissioners be approved, and that the percentage be relinquished
132	61	" 20	P A Peterson	M. Smith	Enclosing diary extracts, and force returns.
133	61	" 21	"	"	Respecting farm crossings.
134	62	" 21	J B Bertrand	P A Peterson	Wanting foundation laid out at Nipissiguit River.
135	62	October 5	M Smith	"	Respecting structures to cross ditches.
136	63	" 6	J B Bertrand	"	Wanting foundations, etc., of bridges at Tête-a-gauche.
137	63	" 7	P A Peterson	M Smith	Respecting culvert at 474—Contractors want to make it a double box.
138	63	" 10	"	S Fleming	Respecting stream and road bridge, Contract No. 9. Alteration proposed.
139	64	" 11	J B Bertrand	P A Peterson	To lay out pier of Nipissiguit Bridge.
140	64	" 12	P A Peterson	M Smith	Asks about building a culvert between Stations 470 and 485, Contract 15.
141	65	" 13	"	"	Asks kind of culvert at Station 325.



No.	PAGE.	DATE.	FROM.	TO.	SUBJECT MATTER.
		1870			
142	65	October 13	M Smith.....	P A Peterson.....	Replies to No 140.
143	65	" 17	P A Peterson.....	M Smith.....	With plans of crossing at Station 285, and site of culvert at Station 325.
144	66	" 17	J B Bertrand.....	C S Ross.....	Work under-estimated on Contracts 9 and 15.
145	67	" 19	P A Peterson.....	M Smith.....	Beginning of stone cutting at Rough Waters.
146	67	" 19	"	"	Test pits for foundations at Tête-a-gauche, departure from specification. Stone cutting at Rough Waters.
147	68	" 22	"	"	Foundation ready for last abutment Nipissiguit Bridge.
148	68	" 24	S Fleming	C S Ross.....	Schedules of quantities and prices for monthly certificates, Contracts 9 and 15.
149	69	" 24	P A Peterson.....	M Smith.....	Foundation for Nipissiguit Bridge.
150	69	" 24	Commissioners.....	Privy Council	Report on Contracts 9 and 15—amount of work satisfactory—difficulties in reference to stone—two good granite quarries near Nipissiguit Bridge—extensive and satisfactory preparations.
151	70	" 24	"	"	Submitting No. 148.
152	70	" 24	"	"	Recommending that Engineers be instructed not to make deduction for errors, omissions and contingencies.
153	71	Oct 25	P A Peterson... ..	M Smith.....	Testing foundation for culvert at Station 474, Contract 15.
		1869.			
154	71	" 25	Privy Council .....	.....	Accepting tender of J. B. Bertrand for Contract 9.
		1870.			
155	72	" 26	" .....	.....	Adopting recommendations of No. 148.
156	72	" 26	M Smith.....	P A Peterson.....	Answer to No. 153, respecting foundation of west abutment of Nipissiguit Bridge.
157	73	" 26	P A Peterson.....	C Blackwell.....	Foundations of abutments of Nipissiguit Bridge.
158	73	" 27	"	M Smith.....	Sample of rock in foundation of Nipissiguit Bridge, and sample of sand to be used.
159	74	" 27	M Smith.....	P A Peterson.....	Answer to No. 149.
160	74	" 28	"	S Fleming	With plans of three methods of crossing stream and road at Station 807 on Contract 9.



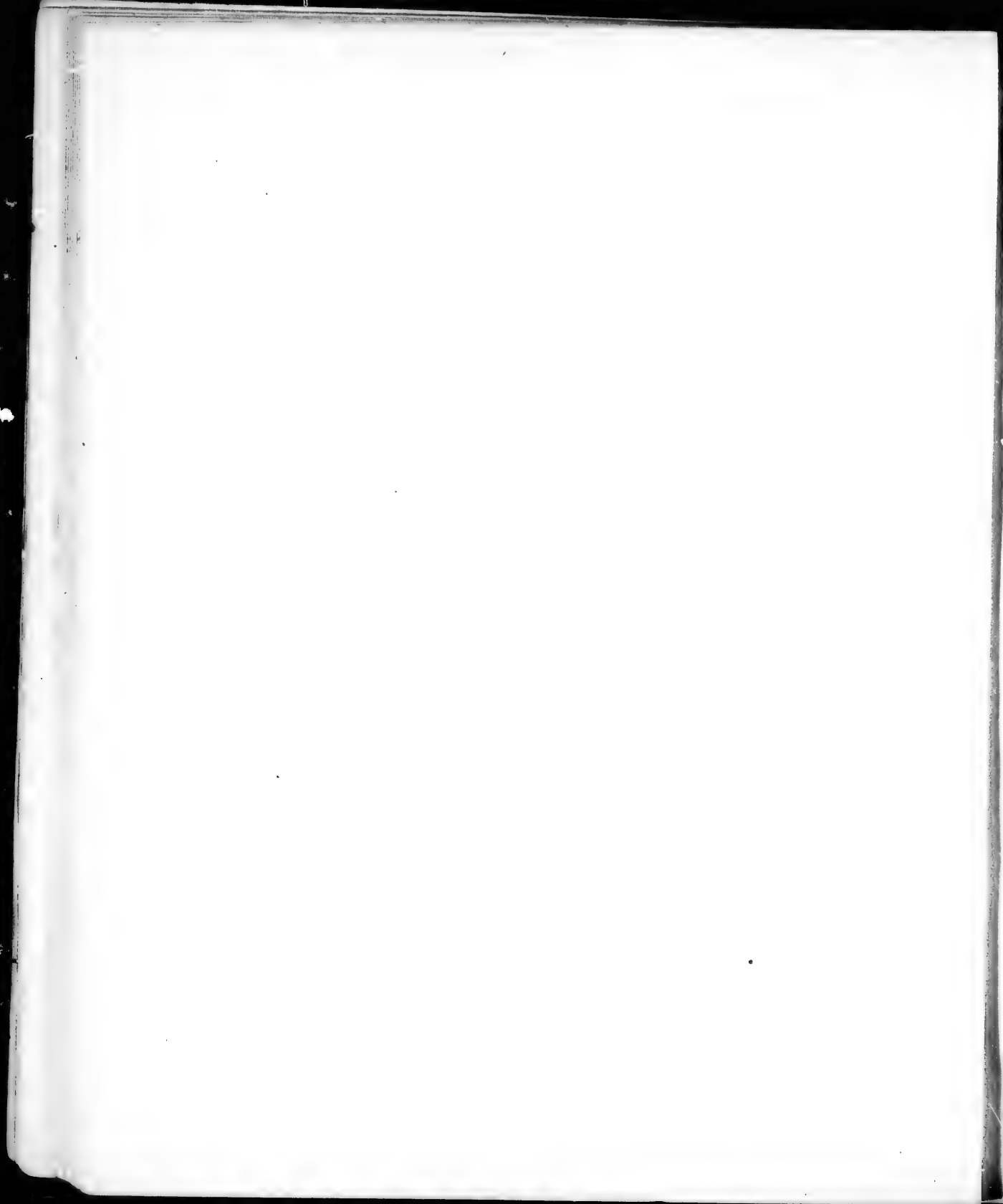
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
		1869			
161	75	October 28	P A Peterson.....	M Smith.....	Answer to No. 159, about stepping foundation to Nipissiguit Bridge.
162	76	" 29	S Fleming.....	C S Ross.....	Asks for copy of Order in Council establishing rates for payments, and reports of Commissioners recommending the same.
163	76	" 29	C S Ross.....	J B Bertrand.....	Answer to No. 144.
164	77	" 29	M Smith.....	P A Peterson.....	Answer to No 161.
165	77	" 31	S Fleming.....	C S Ross.....	Asks for copy of prices recommended by Commissioners, and of report of Commissioners of 20th Sept.
166	78	" 31	J B Bertrand.....	M Smith.....	Asks plan, &c., of cattle guard; also for instructions about foundations Armstrong's Brook, Peter's River and Tete-a-gauche.
167	78	Nov 1	M Smith.....	P A Peterson.....	Respecting extra land required at 102 and 104; also as to fences.
168	78	" 2	J B Bertrand.....	M Smith.....	As to dressing stone for Nipissiguit River Bridge.
169	78	" 2	P A Peterson.....	".....	Will see owners respecting land at 102 and 104.
170	80	" 3	M Smith.....	J B Bertrand & Co....	Replying to 168 :—No change can be made; beds of stone must be cut to a true plane
171	80	" 4	".....	P A Peterson.....	Enclosing tracing of pier for Nipissiguit River Bridge.
172 & 173	80	" 4	".....	".....	Referring to letter 143, bridge over railway would be best at Station 285; to letter 146, no timber required.
174	82	" 4	J B Bertrand.....	".....	Mr. Gillies, Superintendent for Sec. 9, will commence on Sec. 15.
175	82	" 5	M Smith.....	S Fleming.....	Masonry commenced at Nipissiguit; first course of timber at Louison.
176	82	" 7	S Fleming.....	M Smith.....	No change in specification for Nipissiguit Bridge, but wish to make work to suit quarries.
177	83	" 7	M Smith.....	J B Bertrand.....	Enclosing plan of cattle guards; respecting masonry at Armstrong's Brook, Peter's River and Tete-a-gauche.
178	83	" 9	P A Peterson.....	M Smith.....	Respecting road diversion at 285.
179	84	" 9	C Odell.....	".....	Wanting plan of cattle guard; principal wood spruce and cedar; latter difficult to find sound.
180	84	" 10	S Fleming.....	C S Ross.....	Respecting new basis for certificates. Desires to remove impression of his concurrence with change.



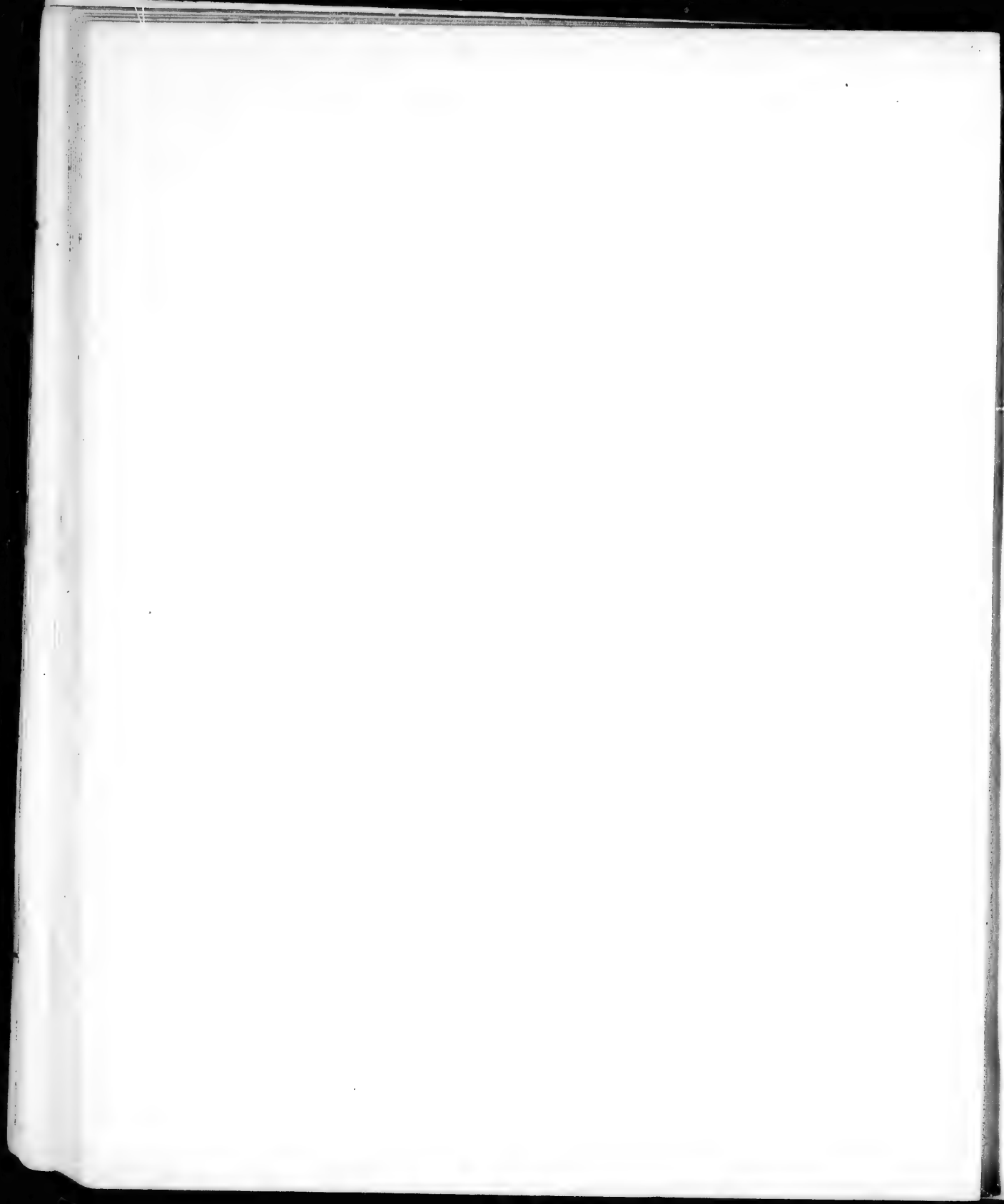
No.	PAGE	DATE	FROM.	TO.	SUBJECT MATTER.
181	85	1889 Nov 10	M Smith.....	S Fleming.....	Enclosing tracings of west abutment and an average pier for Nipissiguit River Bridge.
182	86	" 15	P A Peterson.....	M Smith.....	Enclosing diary and force returns; proposing lowering of grade between 137 and 171.66.
183	86	" 16	M Smith.....	Messrs Bertrand.....	Proposing tunnel under railway at Armstrong's Brook.
184	87	" 17	".....	S Fleming.....	Respecting curtailment of staff.
185	88	" 17	Messrs Bertrand.....	P A Peterson.....	Wanting plans for iron bridges.
186	88	" 17	C Odell.....	— Bolger.....	Enclosing list of alterations in grades.
187	89	" 18	P A Peterson.....	M Smith.....	Respecting change in grades—cost of work to end of October \$20,200.
188	89	" 18	M Smith.....	C Odell.....	Desiring a drawing of some one structure on division, as sample for Chief Engineer.
189	90	" 18	".....	P A Peterson.....	Same as above.
190	91	" 19	".....	".....	Not to alter grade as proposed at present.
191	91	" 19	P A Peterson.....	M Smith.....	Replying to 189—trouble with Inspector at Nipissiguit Bridge as to headers in masonry.
192	92	" 20	J Fotheringham.....	".....	Explaining above.
193	92	" 21	M Smith.....	P A Peterson.....	Respecting headers as above.
194	93	" 21	P A Peterson.....	M Smith.....	Enclosing returns—Bertrand will not say what he intends to do with the stone at No. 2 Quarry.
195	93	" 21	M Smith.....	C Odell.....	List of changes in grade.
196	94	" 22	".....	".....	Desiring him to find out actual cost to Contractors of several classes of work. Sent also to Peterson.
197	95	" 25	P A Peterson.....	M Smith.....	Plan sent as desired in 188—Cost of works obtained. Respecting headers at Nipissiguit Bridge.
198	96	" 25	C S Ross.....	Messrs Bertrand.....	Error of \$3000 in October estimate will be adjusted in November.
199	96	" 26	C Odell.....	M Smith.....	Enclosing tracing of culvert as requested in 188.
200	96	" 26	P A Peterson.....	".....	Replying to 196—giving cost.
201	97	" 28	M Smith.....	S Fleming.....	Desiring that "McConnell" should have a chance somewhere.
202	97	" 28	P A Peterson.....	M Smith.....	Contractor wants plans for Nipissiguit Bridge.
203	98	Dec. 1	".....	".....	Enclosing estimates with explanation. Bertrand's stone cutters have struck.



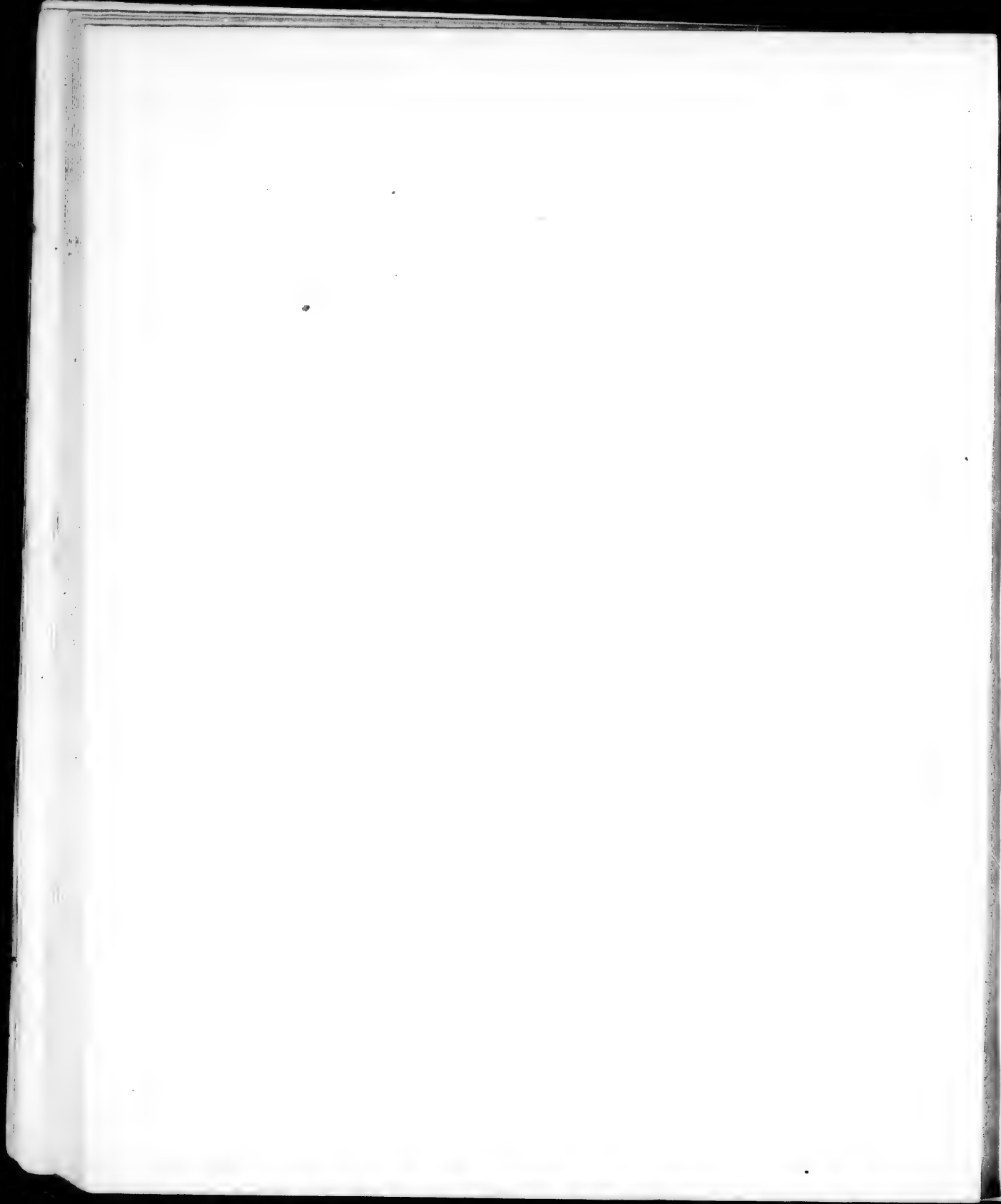
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
204	98	1869 Dec	2 C Odell	"	Enclosing progress estimates.
205	99	"	2 P A Peterson	"	Enclosing monthly estimate—Contractors over-paid last month on stone. Estimate of stone at Rough Waters.
206	99	"	3 J B Bertrand	"	Wanting to know if it is necessary to fill up last corner of side walls in culvert 485, Section 15.
207	100	"	3 P A Peterson	"	Respecting work at 474—Projections left on rock face. Foremen refuse to give time.
208	100	"	5 M Smith	S Fleming	Enclosing certificates for November.—No materials returned for No. 6, as the Contractors used Jobin's, which are put as set off.
209	101	"	6 C S Ross	Messrs Bertrand	No November estimate for No. 9, as work done does not cover previous over-payment.
210	101	"	6 P A Peterson	M Smith	Bertrand will see about foremen refusing to give time—Wants plans of overhead bridges.
211	102	"	6 M Smith	P A Peterson	Double box culvert at 474 must be finished according to drawings.
212	102	"	6 "	S Fleming	Correcting drawings sent (181).—Wanting bridge plans over the Metapedia.
213	103	"	7 "	P A Peterson	Enclosing plan of culvert at Peter's River, other plans promised.
214	104	"	7 "	S Fleming	Scows can get within two miles of Nipissiguit bridge.
215	104	"	9 P A Peterson	M Smith	Dimensions of several structures given to Bertrand.
216	104	"	9 "	"	As to road to be made between "Rough Waters" and Nipissiguit bridge.
217	105	"	10 C Odell	"	Respecting road diversion at 775.
218	105	"	13 M Smith	C Odell	Replying to above.
219	106	"	13 J B Bertrand	P A Peterson	Wishing him to examine fence near St. Ann's road to see if satisfactory.
220	106	"	15 M Smith	S Fleming	Respecting road referred to above (216.)
221	107	"	15 P A Peterson	M Smith	Fence referred to (219) satisfactory.
222	107	"	20 M Smith	P A Peterson	As to culvert at Station 474—also as to mode of making embankments.
223	108	"	20 P A Peterson	M Smith	Enclosing returns. Culvert at 474 completed. Stone not ready under six weeks.



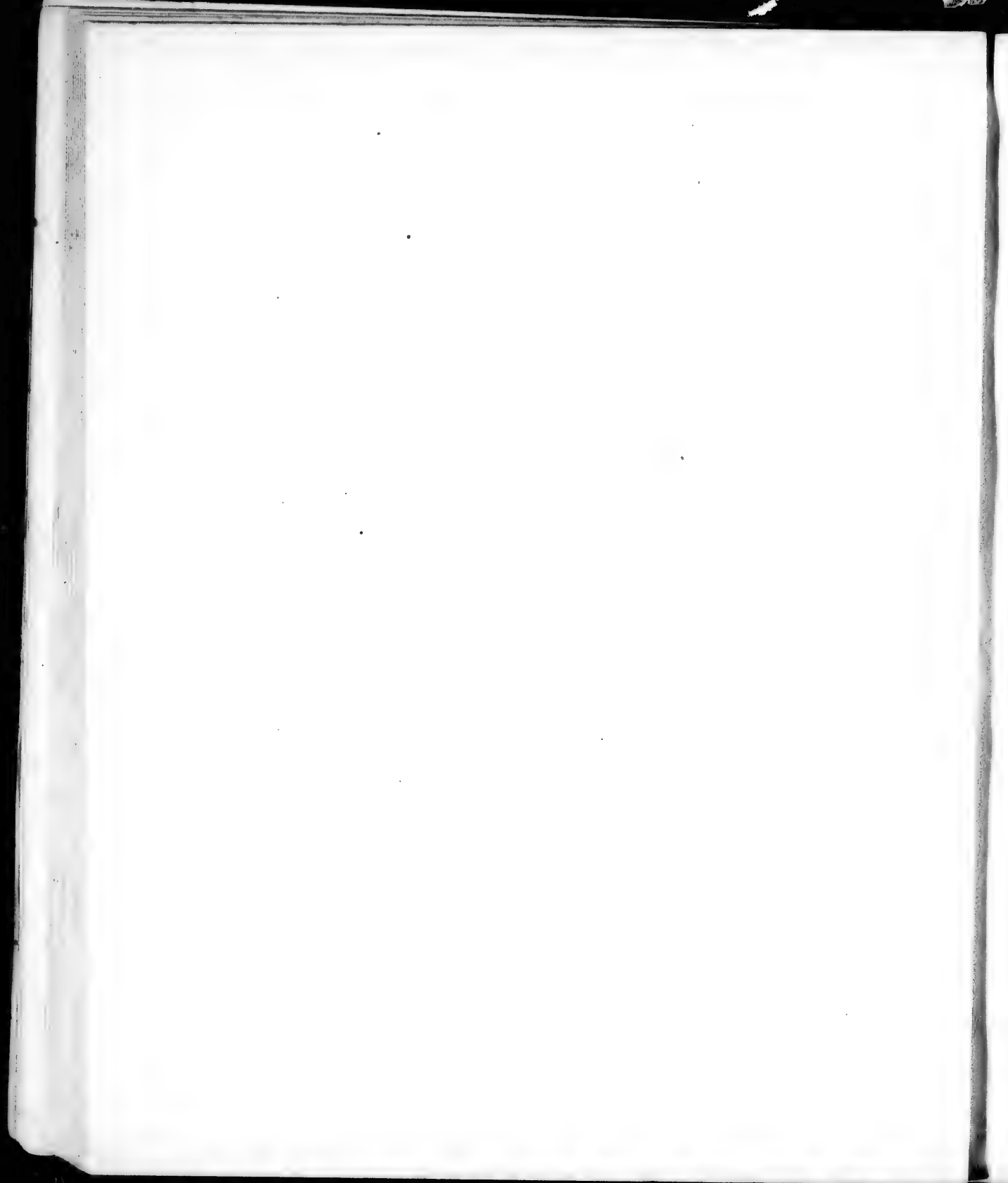
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
224	108	1869 Dec 22	M Smith.....	P A Peterson.....	Enclosing plan of footing course of pier at Nipissiguit to aid contractor. Stones large to handle. Will give any plan of contractor consideration.
225	109	" 22	P A Peterson.....	M Smith.....	Respecting abutments, contradictory orders of foreman. First-class masonry has cost \$24.43 per yard.
226	110	" 23	"	"	Enclosing list of masonry. As to cost of dressing.
227	110	" 23	M Smith.....	P A Peterson.....	Respecting fencing and culverts; replying to 221 and 223.
228	111	" 27	"	Messrs. Bertrand.....	Respecting embankments; also calling attention to powers of engineers to dismiss employees.
229	111	" 29	Messrs. Bertrand.....	P A Peterson.....	Respecting complaints as above.
230	112	" 29	P A Peterson.....	M Smith.....	Enclosing force returns for Rough Waters Quarry; difficult to keep record of stone.
231	112	" 29	"	"	Better for Bertrand to prepare stone now than to build.
232	113	" 29	C Odell.....	"	Enclosing survey of west bank Armstrong's Brook.
233	113	" 30	M Smith.....	P A Peterson.....	At rate of past four months it will take years to get out stone for Contract 15 alone.
1871.					
234	114	Jan 3	C Odell.....	M Smith.....	Enclosing monthly estimates. Granite from Rough Waters not returned.
235	114	" "	P A Peterson.....	"	Bertrand leaving for Bathurst; will take deed of quarries up with him.
236	114	" 4	M Smith.....	C Odell.....	Wanting statement of approximate cost of work to contractor.
237	114	" 4	"	P A Peterson.....	Mistake in footings at Nipissiguit Bridge.
238	114	" 4	C Odell.....	M Smith.....	Suggesting purchase of mill at Armstrong's Brook.
239	115	" 5	M Smith.....	C Odell.....	Respecting error in certificates for December.
240	116	" 5	M Smith.....	P A Peterson.....	Enclosing plans for bridges and culverts.
241	117	" 5	P A Peterson.....	M Smith.....	Enclosing force returns, changes in plan of pier (237) made.
242	117	" 5	Messrs Bertrand and Messrs Berlinguet..	C S Ross.....	Desiring to know whether Commissioners will recognize transfer, as security for advances, of the 15 per cent drawback.



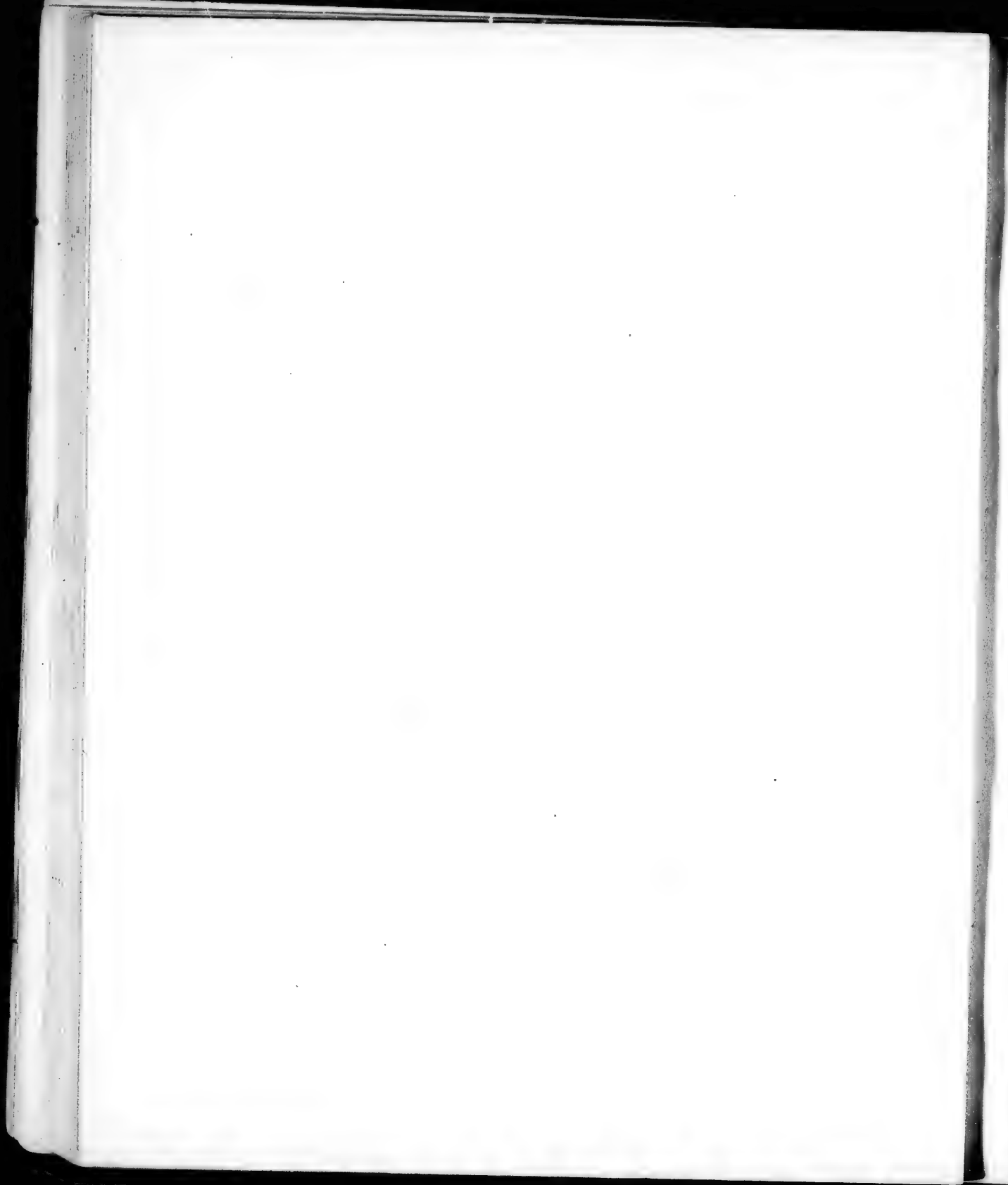
No.	Page.	DATE.	FROM.	TO.	SUBJECT MATTER.
243	118	1871 Jan 7	Messrs Bertrand	M Smith	Respecting deeds of rights to quarries. All held and paid for.
244	118	" 10	C Odell	"	Giving estimated cost required in 236; boys and old men rated as able-bodied; foremen, inexperienced farmers.
245	119	" 10	P A Peterson	"	Enclosing returns. Bertrand going to work each contract separately.
246	119	" 11	Commissioners	Mr Schreiber	Requesting Mr. Schreiber to visit and report on Sections 3, 6, 9 and 15, and giving certain statements as basis of enquiry.
247	119	" 11	"	"	Statements.
248	121	" 13	A Walsh	M Smith	Commissioners will send Mr. Schreiber to report on District.
249	122	" 17	C S Ross	Messrs Bertrand	Replying to 242. Commissioners would not recognize arrangement proposed.
250	122	" 21	M Smith	C Odell	Respecting preparing reports.
251	123	" 25	S Fleming	M Smith	Notifying him of visit of Mr. Schreiber. Government will substitute iron for wood in bridges with concurrence of contractors.
252	123	" 27	C Odell	"	Contractors wanting plans of bridges for farm crossings.
253	123	" 28	S Fleming	"	Replying as to timber for foundations.
254	124	Feb 1	C Odell	"	Enclosing monthly progress estimate. Small amount of work done.
255	124	" 3	S Fleming	"	Wanting exact drawings of all masonry on each contract.
256	124	" 4	C Schreiber	S Fleming	Is going to Bathurst.
257	125	" 7	J Fotheringham	M Smith	Stone at Station 889, Contract 9, bad.
258	125	" 9	S Fleming	"	Respecting timber for over-head bridges.
259	125	" 9	P A Peterson	"	Enclosing returns. Respecting dimensions of bridge at 470.
260	126	" 26	M Smith	C Odell	Desiring him to be particular in measuring work; also, giving rates for materials.
261	127	" 26	"	P A Peterson	Suggestions for marking stone delivered.
262	127	March 4	C Odell	M Smith	Enclosing certificates.
263	128	" 4	P A Peterson	"	Contractor wants plans of bridges at Little and Middle Rivers.
264	128	" 8	"	"	Stone from Bass River is being hauled very slowly.



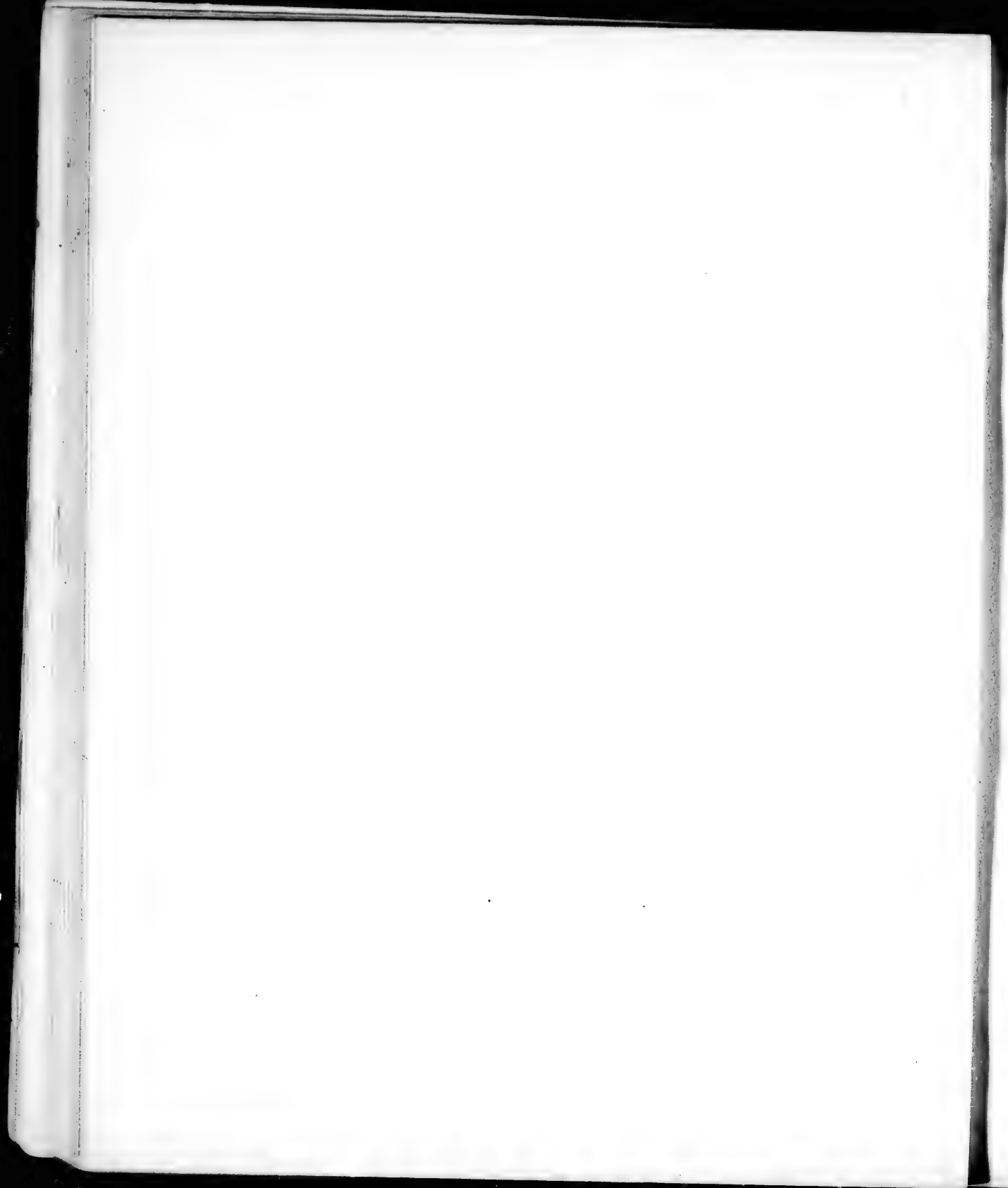
No.	Page.	DATE.	FROM.	TO.	SUBJECT MATTER.
265	128	1871 March 9	C Odell	P A Peterson	Enclosing detailed abstract of work done, and materials delivered.
266	129	" 9	M Smith	"	Returning tracing west abutment, Nipissiguit; not as wanted
267	129	" 10	P A Peterson	M Smith	Sutherland has offered \$3 50 a day for teams and been refused.
268	130	" 10	M Smith	P A Peterson	General drawings sufficient for structures built according to them.
269	130	" 11	"	C S Ross	Respecting arch culvert at Senator Ferguson's and level crossings generally.
270	132	" 11	C Schreiber	A Walsh	Report on visit of inspection paid to sections.
271	137	" 13	M Smith	C S Ross	Respecting materials paid for but not delivered on the line.
272	137	" 13	C Odell	M Smith	Quarry force not in returns, because quarries only opened and then abandoned.
273	138	" 16	P A Peterson	"	Quarry at Middle River not turned out well. Men to be transferred to Culvert 356.
274	138	" 17	M Smith	Forrest	Respecting west abutment Nipissiguit Bridge.
275	139	" 17	J B Bertrand	M Smith	Wanting copy of General Plans.
276	139	" 18	M Smith	J B Bertrand	Sending plan required above.
277	139	" 18	M Smith	P A Peterson	Must get written request from Bertrand to alter culverts 471 and 475. Keep Rough Waters force separate.
278	140	" 20	P A Peterson	M Smith	Contractor wants to begin masonry at Nipissiguit; frost too hard. Respecting culverts at 264 and 482.
279	141	" 21	M Smith	C Odell	Enclosing tracings of culverts built to end of 1870.
280	141	" 22	C Odell	M Smith	Contractor wants copy of estimates.
281	141	" 23	C Schreiber	S Fleming	Work much behind; masonry sadly neglected; well put together, but cost extravagant.
282	142	" 23	M Smith	"	Sending tracings; promising profiles.
283	142	" 23	"	C Odell	Bertrand must make written application for alterations, acknowledging them to be for his benefit.
284	143	" 23	"	"	Replying to 280.
285	143	" 23	"	"	Mode of entering force returns; contractors not working quarries properly.



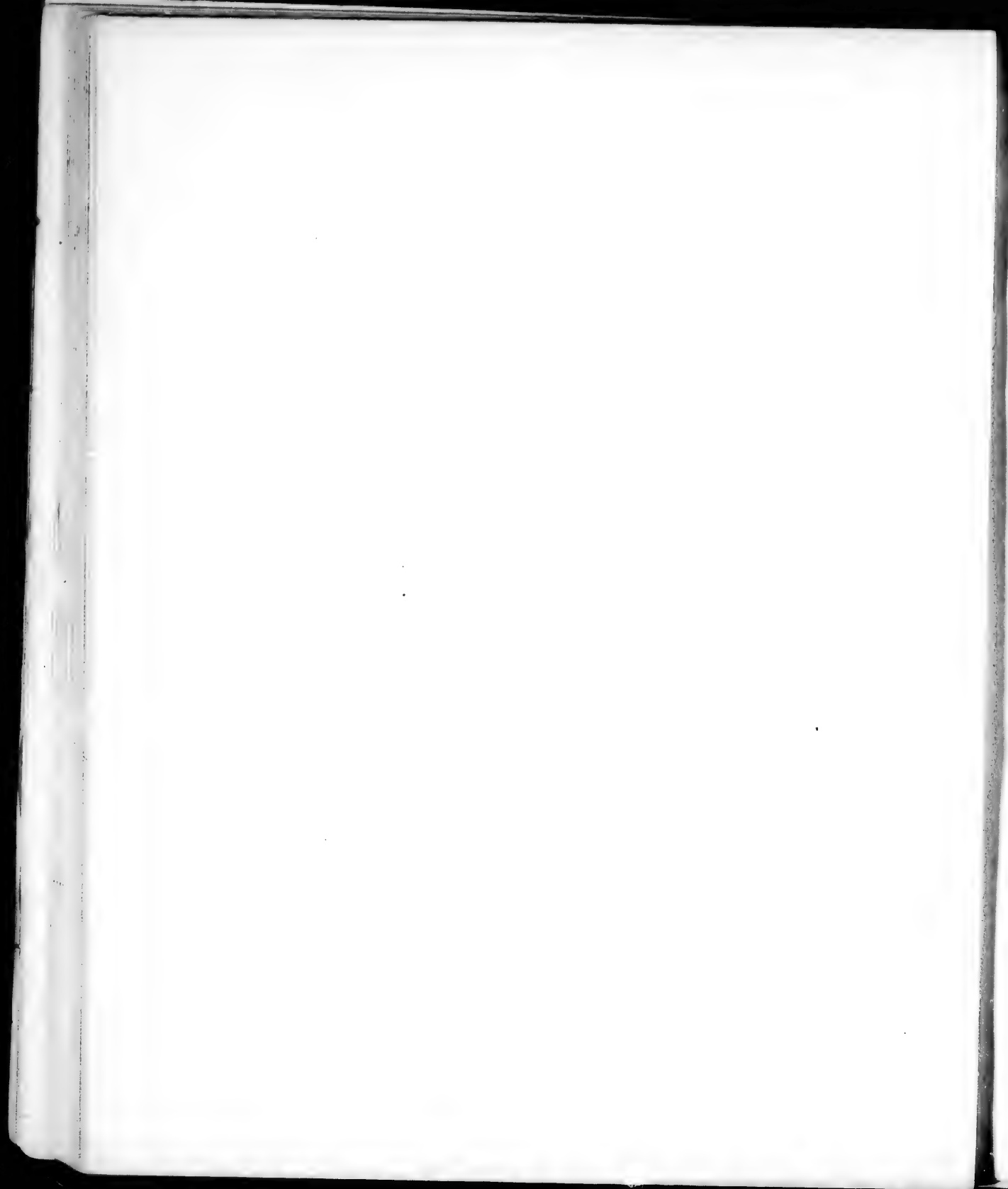
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
286	144	1871 March 23	M Smith	P A Peterson.....	Respecting masonry and cement.
287	145	" 23	"	S Fleming.....	Respecting west abutment Nipissiguit Bridge ; it is far wider than shown on plans.
288	146	" 27	S Fleming.....	M Smith.....	Have streams observed during freshets.
289	146	" 28	M Smith.....	P A Peterson.....	Enclosing tracings for over-bridges at 337 + 53 and 583.
290	146	" 29	C S Ross.....	M Smith.....	Replying to 269 and 271 ; materials must be upon the line before being estimated.
291	147	" 29	P A Peterson.....	"	Replying to 277 and 286.
292	147	" 29	C S Ross.....	"	Same as 290.
293	148	" 30	S Fleming.....	"	As to abutment Nipissiguit Bridge.
294	148	April 3	C Odell	"	Enclosing progress certificates.
295	148	" 3	M Smith.....	P A Peterson.....	Masonry not to be allowed to go on till proper cement is provided.
296	149	" 3	Messrs Bertrand...	"	About to commence work at Nipissiguit Bridge.
297	149	" 3	P A Peterson.....	Messrs Bertrand.....	Will examine masonry when stripped.
298	150	" 3	"	M Smith.....	As to commencing masonry.
299	150	" 3	"	"	Contractor going to make bridge at 285 ; will not take off rock face of culverts, nor allow for it ; 13 stone-cutters left.
300	151	" 4	"	"	Masonry Nipissiguit uncovered ; cement in good order.
301	151	" 4	M Smith.....	P A Peterson	Must not forbid commencing masonry ; see that cement to be used is tested.
302	152	" 5	C S Ross.....	C Schreiber.....	Enclosing correspondence respecting Mr. Ferguson's crossing ; desiring him to visit and report.
303	153	" 6	W Home	"	Respecting arrangement for engines, materials, &c., for season.
304	153	" 11	M Smith.	P A Peterson.....	Respecting "stepping in" at Nipissiguit Bridge.
305	154	" 11	P A Peterson.....	M Smith.....	As to "corbels" and "covers" at Nipissiguit Bridge.
306	154	" 11	C Odell	"	Contractors insisting on using condemned stone at 865, 888 and 909.
307	155	" 11	M Smith.....	S Fleming.....	Masonry Nipissiguit Bridge commenced 5th inst.



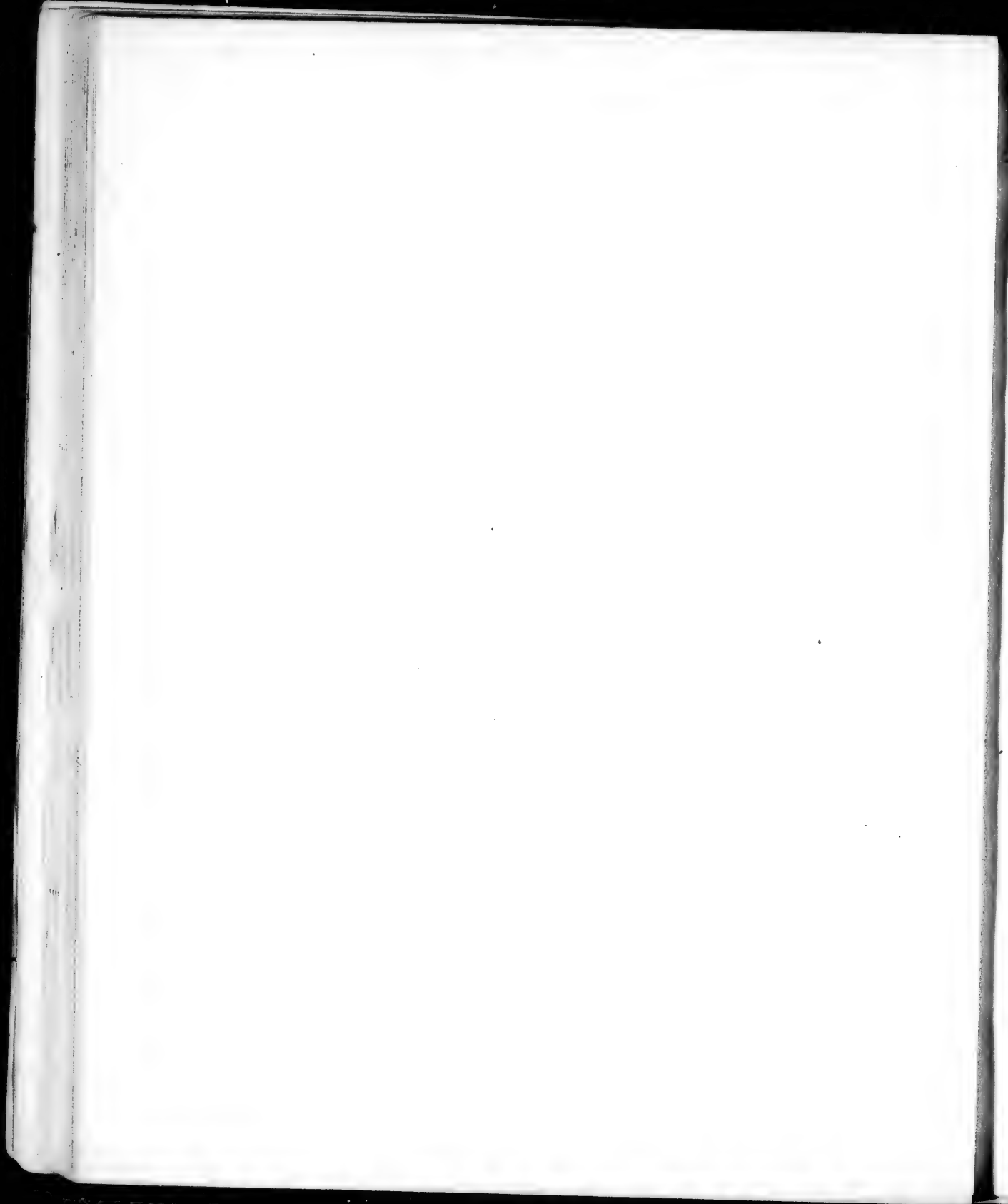
No.	Page.	DATE.	FROM.	TO.	SUBJECT MATTER.
308	155	1871 April 12	J Fotheringham.....	C Odell.....	Though a mason for forty years, never saw such stone delivered as that condemned.
309	155	" 12	M Smith.....	P A Peterson.....	As to "corbelling" at Nipissiguit Bridge.
310	156	" 13	P A Peterson.....	M Smith.....	Respecting horizontal wall at Nipis- siguit Bridge.
311	156	" 12	C Schreiber.....	W Home.....	Respecting steam shovel, &c.
312	156	" 14	P A Peterson.....	M Smith.....	Respecting "corbelling." Bertrand seldom on works.
313	157	" 15	M Smith.....	P A Peterson.....	No letter required from Bertrand ac- cepting changes made by the Chief Engineer in plan of Nipis- siguit Bridge—instructions about corbelling and inner walls of same bridge.
314	157	" 15	"	C Odell.....	No change at present necessary in plan of Elmtree Bridge ;—no im- proper stone to be allowed to go into the work.
315	158	" 15	P A Peterson.....	M Smith.....	Good cement at Nipissiguit. Sket- ches of box culverts at Stations 264 and 356, Contract 15.
316	158	" 17	J B Bertrand.....	Chas Odell.....	Asks plans of culverts at Stations 109 and 143, Contract 9.
317	159	" 17	"	P A Peterson.....	Asks permission to make partition wall of double b x culvert at Station 356+62 two feet thick.
318	159	" 17	"	"	Asks permission to make box culvert instead of arch at Station 482.
319	159	" 18	M Smith.....	W J Forrest.....	About plans for iron superstructure of bridges.
320	160	" 19	J B Bertrand.....	P A Peterson.....	Asks for change of grade at Station 260, Contract 15.
321	160	" 20	"	C Odell.....	Asks for culverts at Stations 95, 109, 825, 933, and 142 to be set out.
322	161	" 20	P A Peterson.....	M Smith.....	Correspondence with Bert and about changes.
323	161	" 20	D Home.....	C Schreiber.....	Progress estimates.
324	162	" 27	P A Peterson.....	M Smith.....	Foundation at Tête-à-gauche.
325	163	" 27	J B Bertrand.....	P A Peterson.....	Asks for centre point of pier at Nipissiguit.
326	163	May 1	F X Berlinguet.....	Commissioners.....	Bathurst granite.
327	164	" 1	P A Peterson.....	M Smith.....	Have returned all stone in quarries in certificate.
328	164	" 2	C Odell.....	"	Contractors getting good stone near Station 127.



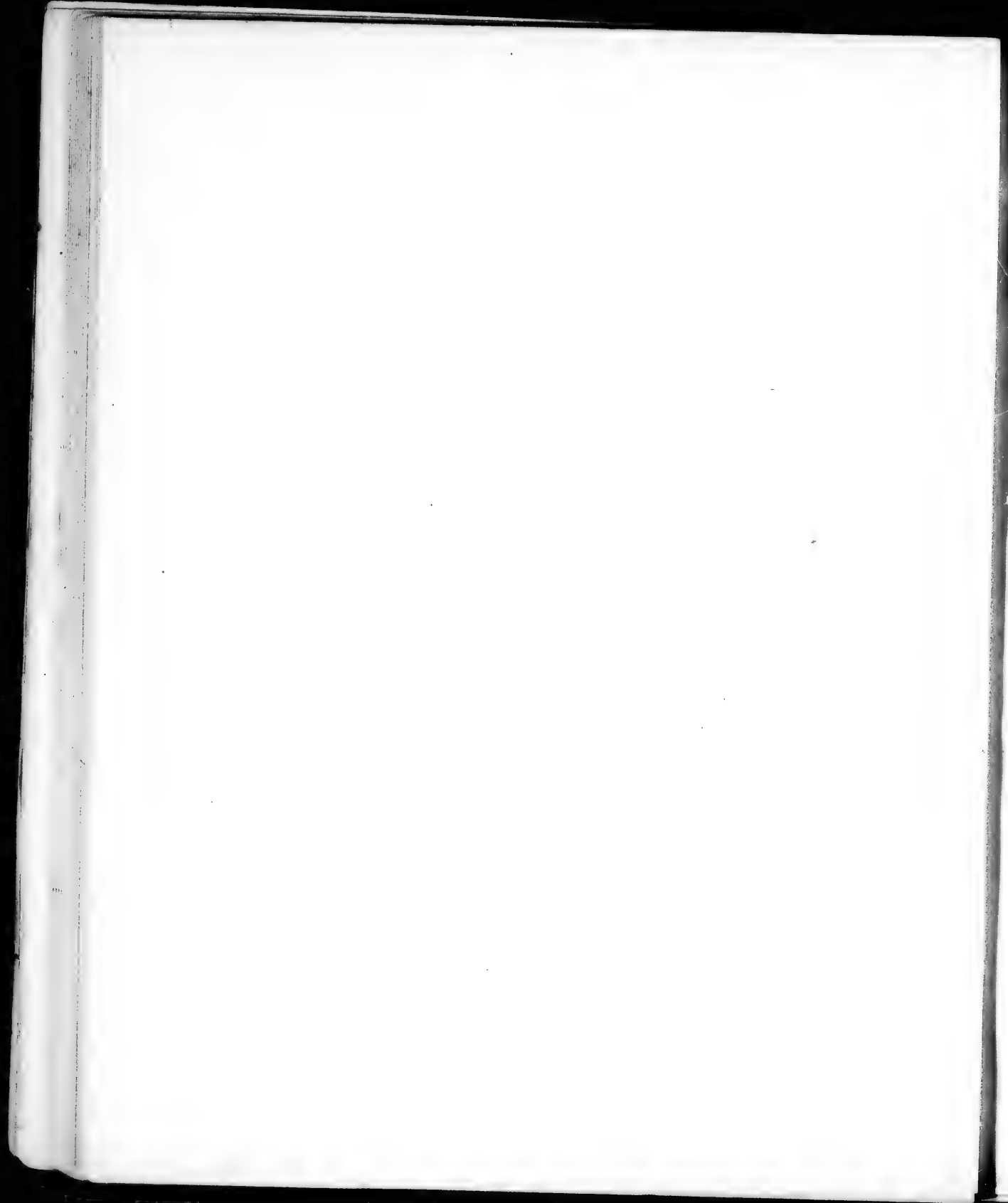
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
329	165	1871 May 3	P A Peterson	M Smith	Respecting plans for Tête-à-gauche Bridge, etc.
330	165	" 3	J B Bertrand	C Odell	Wanting foundations marked.
331	166	" 3	"	M Smith	Objecting to proposed depth of foundations at Tête-à-gauche.
332	166	" 5	M Smith	C Odell	Commissioners about to visit line; prepare information.
333	167	" 5	P A Peterson	M Smith	Rock found in foundation of abutment, Tête-à-gauche.
334	167	" 6	"	"	Respecting covers for horizontal wall.
335	167	" 8	C Odell	"	Respecting road diversion objected to by Godin and Haché.
336	168	" 10	M Smith	P A Peterson	Respecting work at Tête-à-gauche. Also as to courses and bridge seat at Nipisiguit.
337	168	" 11	"	C Odell	Replying to 335, is doubtful as to alteration proposed.
338	169	" 16	C S Ross	Messrs Bertrand	Government have decided to use iron instead of wooden bridges.
339	169	" 16	S Fleming	C Schreiber	Contractors reported to be using inferior cement; this to be stopped.
340	169	" 18	P A Peterson	M Smith	Respecting lengthening culvert at 474.
341	170	" 19	M Smith	P A Peterson	Replying to above; culvert to be made of dimensions required.
342	170	" 21	"	C Schreiber	Engineers to be careful in measurements. Contractors never delayed an hour for want of plans. Warning him against Grand Anse stone.
343	170	" 25	W Home	"	Wanting him to come up to meet Bertrand.
344	171	" 25	Messrs Bertrand	P A Peterson	Wanting foundation of culvert, Station 551.80 laid out.
....	171	" 27	Commissioners	"	Extract from minutes. Secretary to make application for warrants of \$10,000 for Sections 3, 6, 9, 15.
345	171	" 27	C Odell	M Smith	Contractors want west abutment Elm Tree River Bridge set out.
346	171	" 29	M Smith	C Odell	Promising answer next day to above.
347	172	" 29	"	W J Forrest	Asking information as to spans for above.
348	172	" 30	"	S Fleming	To settle above.
349	172	" 30	"	C Odell	Will send drawing of Elmtree Bridge.



No	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
350	172	1871 June 1	Messrs Bertrand	P A Peterson	Wanting abutment at Middle River laid out.
351	172	" 3	C Odell	M Smith	Contractors liberally dealt with in returns ; returns small force is reduced.
352	173	" 4	C Schreiber	S Fleming	Farmers being busy, laborers are scarce. Contractors are entitled to about \$12,000 over May returns.
353	174	" 7	Commissioners	Council	Submitting schedule of prices.
354	174	" 12	Messrs Bertrand	Commissioners	Wanting fencing across Mr. Ferguson's farm laid out.
355	175	" 13	Com. of the P. Council		Advising that schedules as above (353) be adopted.
356	175	" 20	C S Russell	Messrs Bertrand	Giving amount of approximate June estimates.
357	176	" 22	S Fleming	C Schreiber	Revision of quantities advisable where it effects basis for certificates.
358	176	" 24	Messrs Bertrand	C Odell	Wanting culverts set out at Stations 864.50 and 1063.
359	176	" 26	P A Peterson	M Smith	Respecting posts on Mr. Ferguson's farm.
360	177	" 26	"	Messrs Bertrand	Fence, as above, not according to specification.
361	177	" 26	C Schreiber	S Fleming	Not enough quarrymen.
362	177	" 30	Messrs Bertrand	P A Peterson	Desiring to have certain foundations laid out ; also abutment Nipissiguit River ; will attend to fence.
363	178	" 30	P A Peterson	M Smith	Re fencing ; Contractor paying no attention.
364	178	July 3	Messrs Bertrand	C Odell	Wishing to have culvert at Station 1083 set out.
365	178	" 4	"	M Smith	Respecting posts in fencing, all shall be made right.
366	179	" 5	"	P A Peterson	Requesting him to get explanations before carrying complaints.
367	179	" 8	"	"	Desiring to change arch at Station 349 + 50 into a box culvert.
368	179	" 14	"	C Odell	Wanting culvert at 707 set out. Elmtree abutment ready for examination.
369	180	" 27	Com. of the P. Council		Advising increase of schedule rates to 20 cents for earthwork and \$1 for masonry.
370	180	" 28	C Odell	M Smith	Respecting change of Masonry Inspectors.

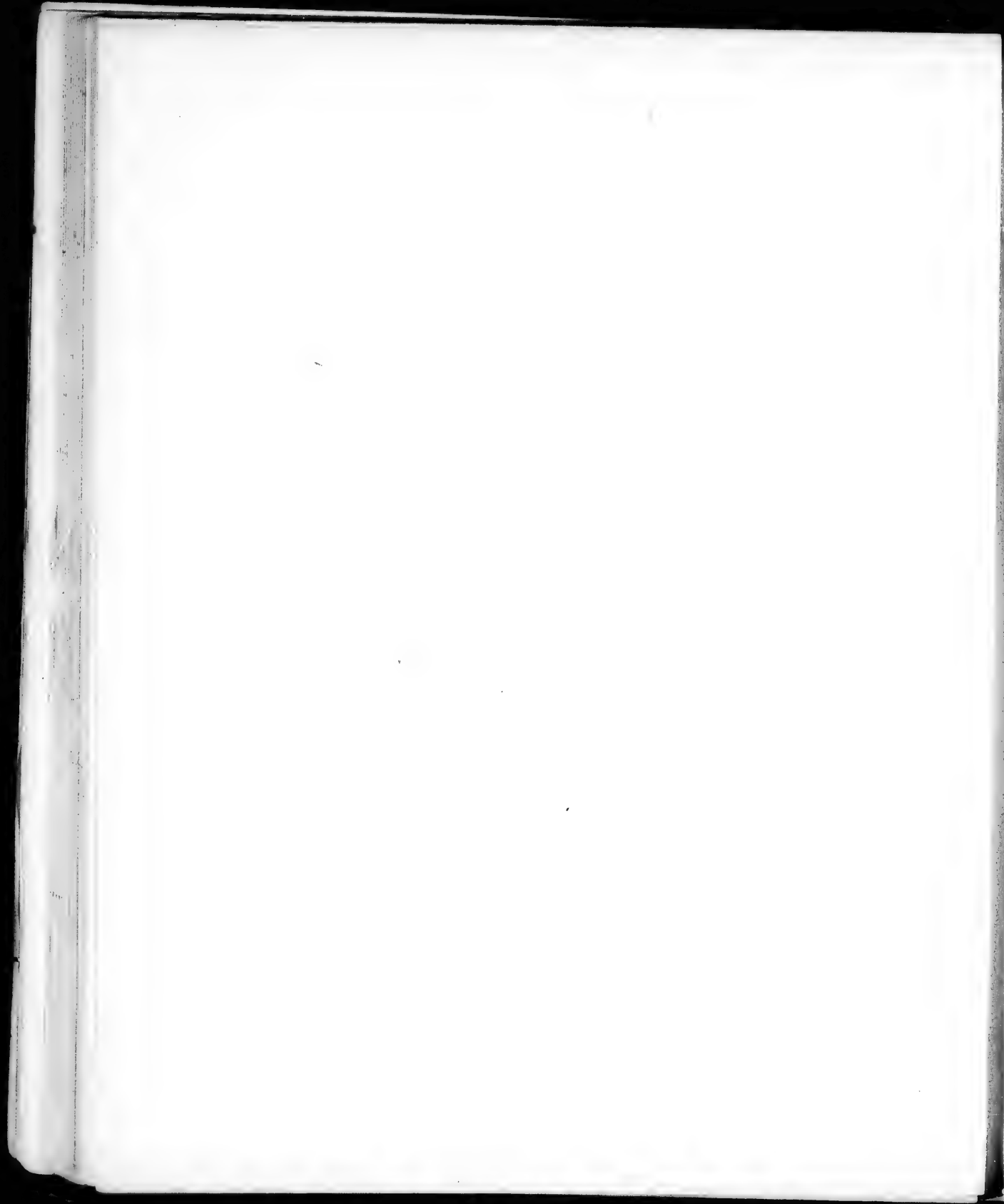


No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
		1871			
371	181	August 3	P A Peterson	M Smith	Contractor wishes to change beam culvert at 851, not having stone for present plan.
372	181	" 3	M Smith	P A Peterson	Contractor may change as above.
373	181	" 7	Messrs Bertrand	C Odell	Desiring to build a double box instead of an arch at Station 80+50.
374	182	" 7	P A Peterson	M Smith	Respecting culvert at 551; will require timber, and concrete foundation.
375	182	" 8	C Odell	"	Respecting letter 373.
376	182	" 9	Messrs Bertrand	C Odell	As to tunnel at Armstrong's Brook.
377	183	" 9	M Smith	P A Peterson	Sketch of plan enclosed. Culvert at 551 will do very well.
378	183	" 11	"	C Odell	Replying to 375. Respecting Brown's Brook; wish to accommodate structures to suit stone, but stream too large.
379	183	" 12	Messrs Bertrand	M Smith	Hoping he will consent to let them change culvert at Brown's Brook.
380	184	" 14	"	C Odell	Wanting culverts set out at 900, 934, and 1074, also foundation Nigadoo Bridge.
381	185	" 17	C Odell	M Smith	As to above.
382	184	" 17	P A Peterson	M Smith	As to arrangement of stone in pier at Nipissiguit. Courses on cutwater wrongly laid.
383	185	" 17	"	"	Contractor thinks plan of Culvert 551 makes him go too deep.
384	185	" 19	M Smith	P A Peterson	Replying to 382. Prefers plan, if contractor can carry it out.
385	185	" 19	"	"	Replying to 383. He has not put too much masonry in foundations.
386	185	" 21	"	S Fleming	Contractors object to tunnel at Belledune River.
387	186	" 21	"	C Odell	Respecting foundations Nigadoo Bridge. Vexatious and unnecessary demands.
388	187	" 22	"	S Fleming	Enclosing sections of Belledune River.
389	187	" 24	P A Peterson	M Smith	Foreman at 441 using common lime.
390	188	" 28	Messrs Bertrand	C Odell	Wanting culverts set out, short of some dimension stones.
381	188	" 28	S Fleming	M Smith	Replying to 388, as to Belledune River.
392	188	" 31	M Smith	P A Peterson	Respecting bridge spans.



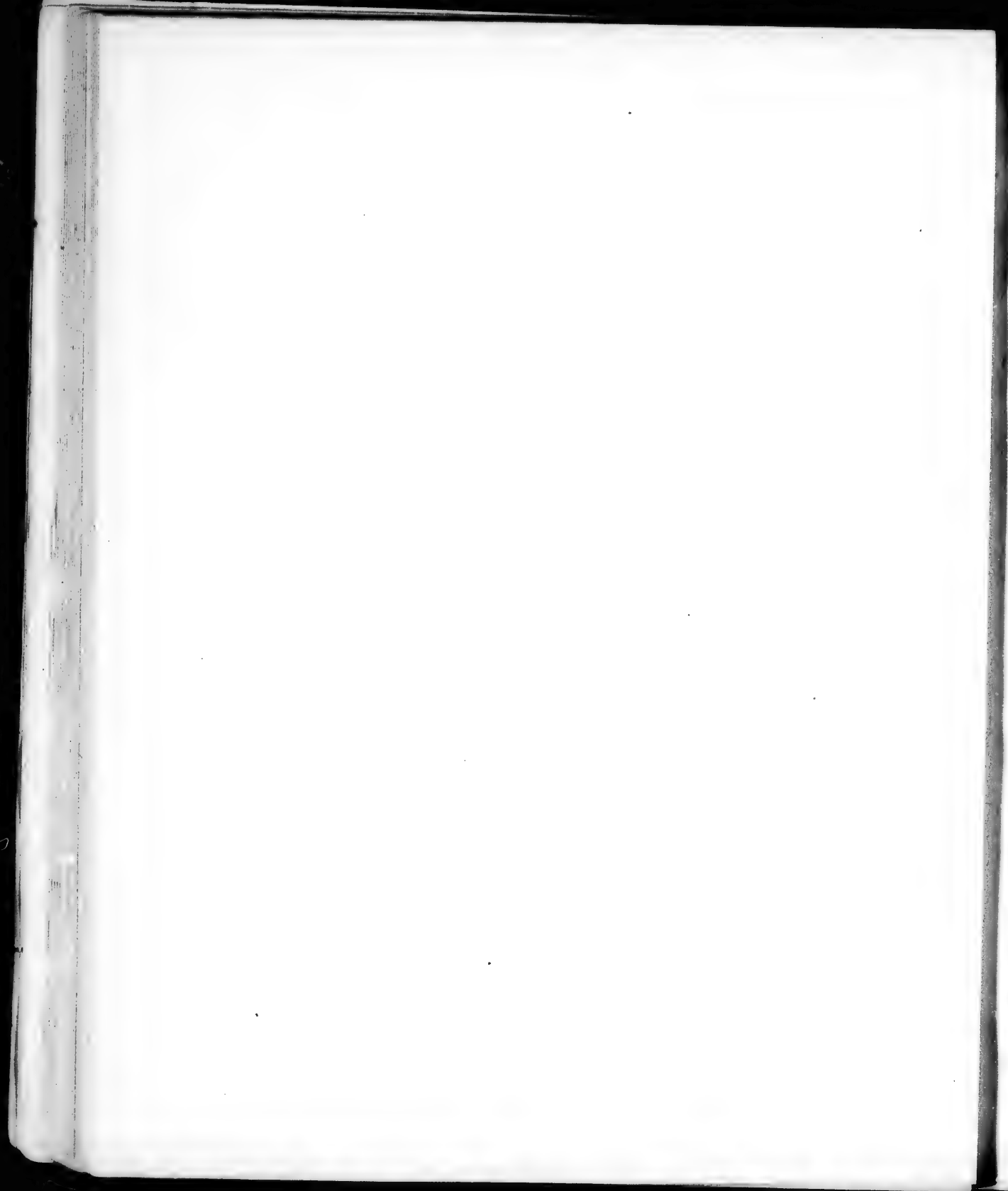
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
393	189	1871 Sept 1	C Odell.....	M Smith.....	Enclosing monthly certificates.
394	189	" 1	M Smith.....	C Odell.....	Making arrangements for walking over division.
395	189	" 12	".....	S Fleming.....	Respecting spans at Clark's, Gilmour's and Louison Brooks.
402	191	" 20	J B Bertrand.....	M Smith.....	Appointing to be at Jacquet River.
403	191	" 21	M Smith.....	S Fleming.....	As to cost of works; recommending advance to contractors.
404	192	" 22	Messrs Brlinquet and Messrs Bertrand.....	The Commissioners.....	Statement of position. Requesting advance of \$50,000.
405	193	" 26	Messrs Bertrand.....	C Odell.....	Requiring to know height of bridge seat, Elmtree River.
406	193	" 27	S Fleming.....	R Jones.....	Has no power to increase certificates. Government must increase the prices which govern them.
407	194	" 27	M Smith.....	C Odell.....	Respecting tunnel at Armstrong's Brook.
408	195	" 27	Commissioners.....		Extract from minutes recommending advance of \$25,000 to each contract; also, respecting claims of contractors.
409	196	" 28	M Smith.....	C Odell.....	Catchwater ditches to be made.
410	197	" 28	".....	P A Peterson.....	" " " "
411	197	" 30	Messrs Bertrand.....	".....	Wanting level of culvert at 412.
412	197	Oct 2	C Odell.....	M Smith.....	Enclosing certificates. Work going on better.
413	198	" 2	F McCaskill.....	".....	Re foundation Charlo River.
414	198	" 5	H McLeod.....	".....	Re Borings at Christopher's Brook.
415	198	" 6	F McCaskill.....	".....	Foundation Charlo River commenced.
416	198	" 7	Messrs Bertrand.....	C Odell.....	Wanting work for stream diversion at 807 set off.
417	198	" 7	S Fleming.....	M Smith.....	Referring to recent inspection. Common lime mortar used for cement.
418	200	" 12	P A Peterson.....	".....	Respecting steps on culvert at 551.
419	200	" 12	".....	".....	Respecting sand stone backing at Tête-à-Gauche.
420	201	" 16	".....	".....	Contractor has ordered sand stone backing at Tête-à-Gauche.
421	201	" 16	M Smith.....	P A Peterson.....	As to above, building stones must be of granite.
422	201	" 17	".....	".....	As to above, giving sketch showing use of granite.

* There is an error here in the numbering and paging, but the continuity is not broken.

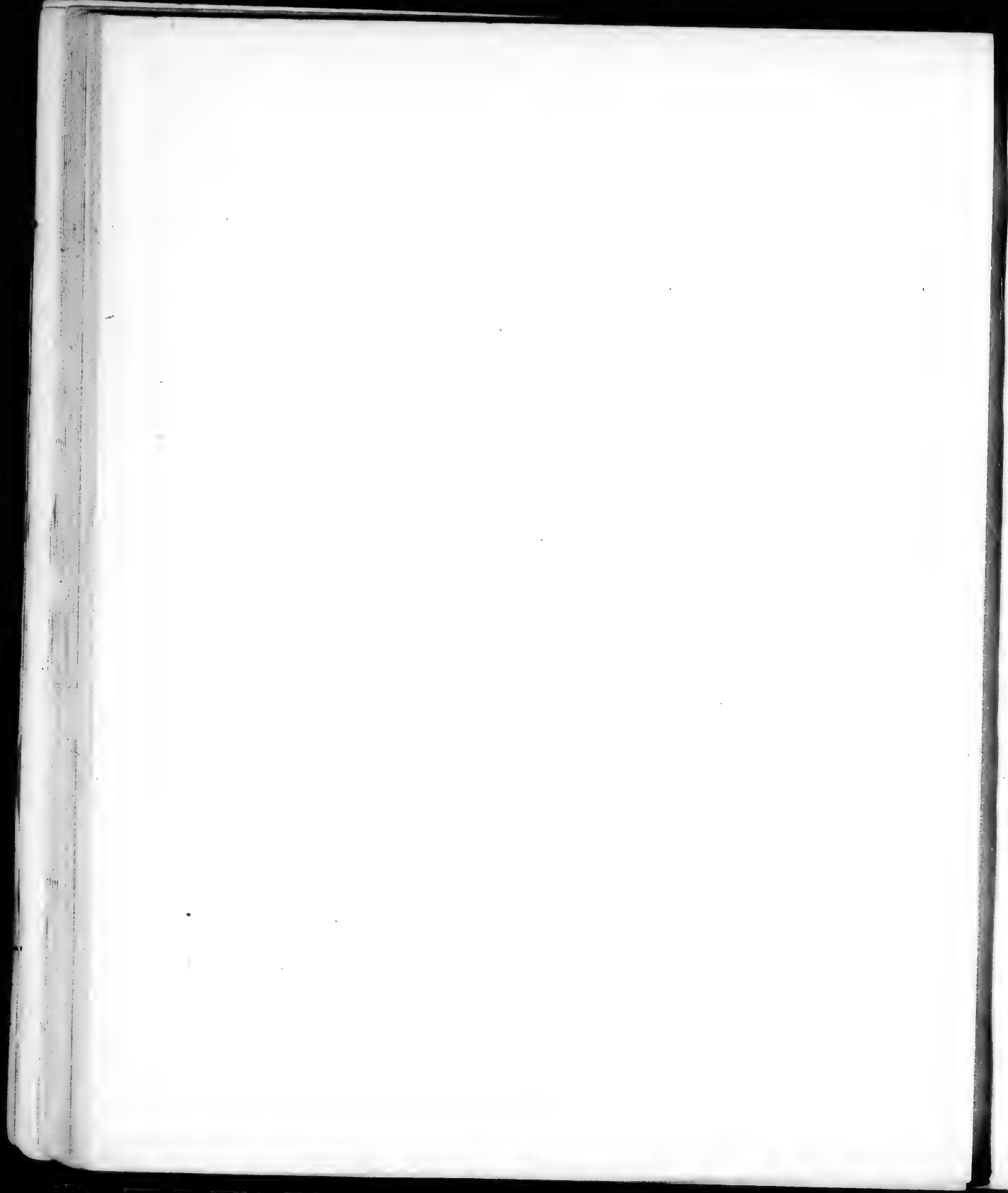


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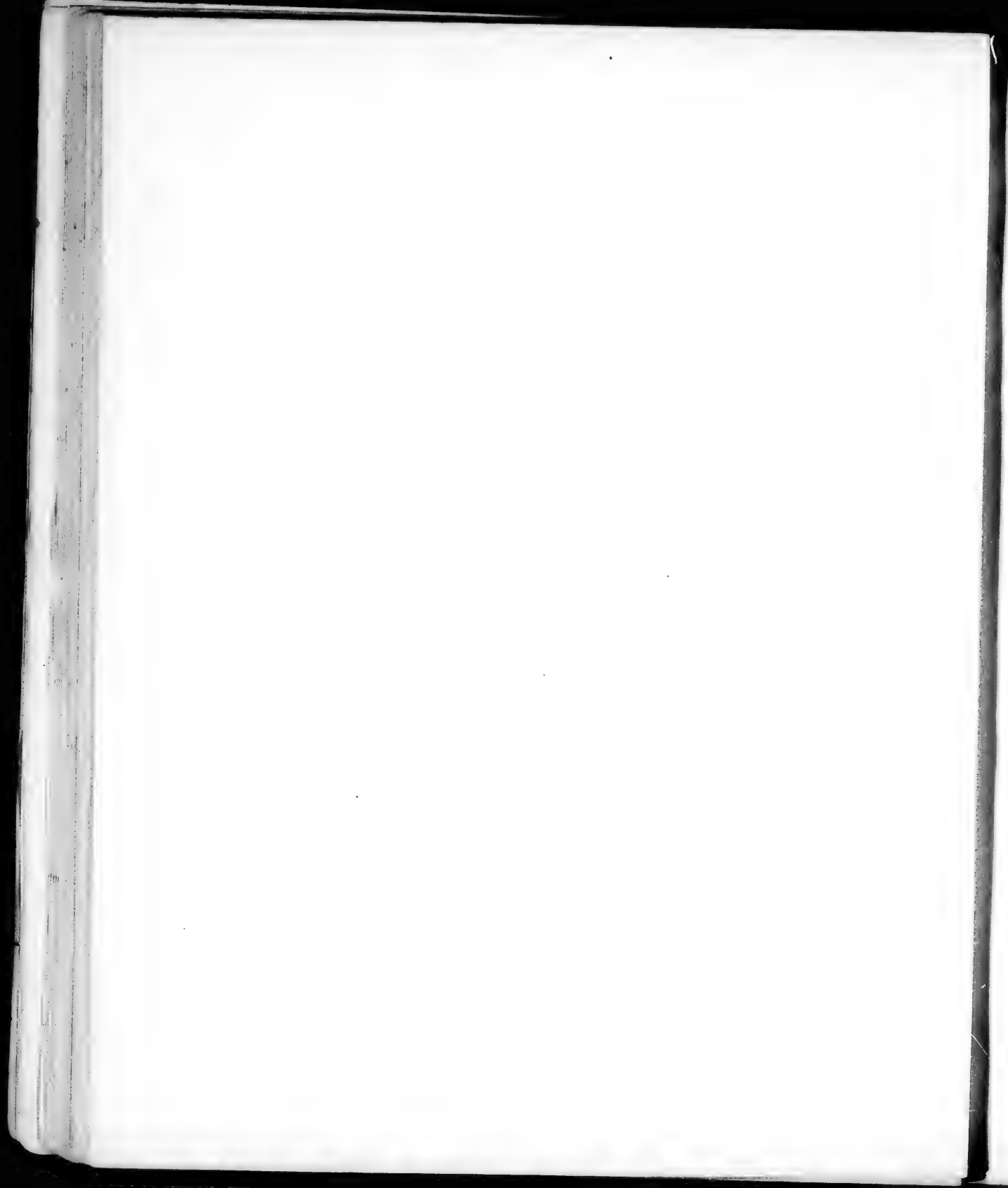
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
423	202	1871 Oct 19	P A Peterson.....	M Smith.....	Composition of stone at Red Sandstone Quarry bad. Foreman at Carter's Brook wants to use it.
424	202	" 19	P A Peterson.....	"	As to Masonry at Tête-à-gauche.
425	203	" 19	M Smith.....	C Odell.....	As to new form of making out schedules.
426	204	" 20	"	P A Peterson.....	Replying to 423; does not think sandstone from "Rough Waters" Quarry fit for foundations.
427	205	" 20	"	"	Same as 425.
428	206	" 21	P A Peterson.....	M Smith.....	Forwarding samples of red sandstone;—will not stand weather.
429	206	" 24	"	"	Contractor complaining because not allowed to use sandstone.
430	207	" 30	S Fleming	"	Season too far advanced to use common cement.
431	207	" 30	"	"	Wanting bill of works and schedule of quantities.
432	207	Nov 2	M Smith.....	P A Peterson.....	Carter's Brook Culvert must be built according to instructions.
433	207	" 2	"	"	Masonry in lime must be stopped for the season.
434	208	" 2	"	C Odell	Same as above.
435	208	" 3	C Odell	M Smith.....	Enclosing progress reports.
436	208	" 4	P A Peterson.....	"	Respecting progress on piers at Nipissiguit Bridge.
437	209	" 4	"	"	No masonry laid since frost; contractor wants to start foundations, but inadvisable to do so.
438	209	" 7	M Smith.....	S Fleming.....	Reporting progress at Nipissiguit Bridge.
439	210	" 7	"	P A Peterson.....	Respecting plans of superstructure.
440	210	" 7	P A Peterson.....	M Smith.....	As to schedule enclosed.
441	210	" 8	"	"	Masonry still going on, but ice is 3 inches thick.
442	211	" 9	M Smith.....	C Odell.....	Bertrand wants to put in culvert at 736; if mild, to allow, but to use cement.
443	211	" 9	"	P A Peterson.....	Bertrand wishes to put in some masonry at Peter's and Middle River; allow, if mild.
444	211	" 9	"	"	Requiring explanations of certain items in revised schedule.
445	212	" 10	P A Peterson.....	M Smith.....	Replying with explanations.



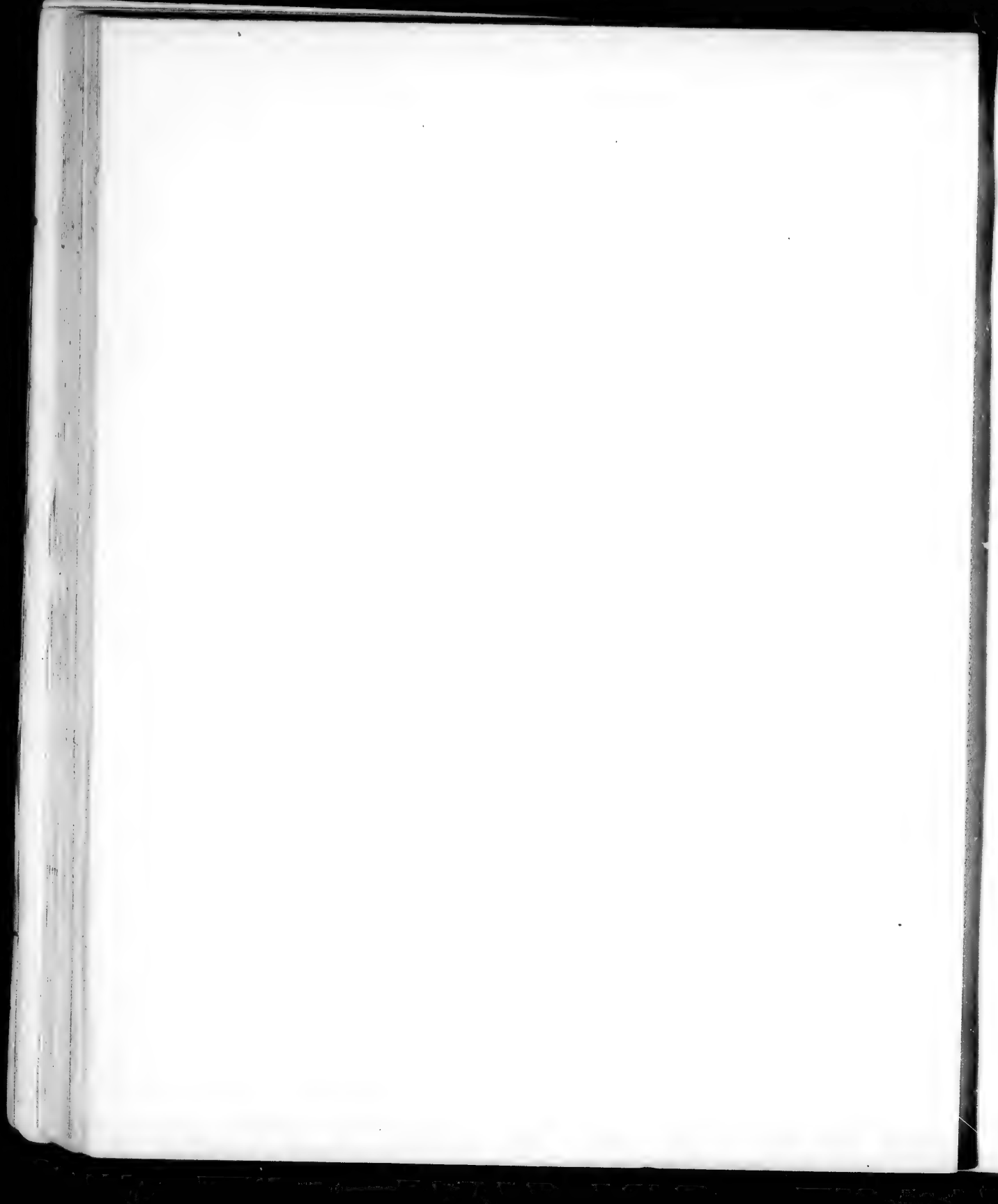
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
446	212	1871 Nov 11	P A Peterson	M Smith	As to surplus in cut.
447	213	" 11	Messrs Bertrand	P A Peterson	Desiring appointment to be made with Superintendent.
448	213	" 13	M Smith	C Odell	Wanting schedule.
449	213	" 14	S Fleming	R Jones	Enclosing certificates at new rates, giving contractors benefit.
450	213	" 14	"	M Smith	Wanting returns.
451	214	" 14	M Smith	S Fleming	Contractors complaining about re- vised quantities; did not want them until end of building sea- son.
452	214	" 14	C Odell	M Smith	Enclosing new schedule, with ex- planations
453	215	" 16	M Smith	S Fleming	Enclosing revised schedule, with explanations.
454	216	" 16	"	C Odell	Enquiring as to allowance for subse- quence of embankments.
455	216	" 16	C Odell	M Smith	In reply to above; has added 10 per cent.
456	216	" 16	M Smith	C Odell	As to error in quantities.
457	217	" 18	"	S Fleming	Giving views as reduction in engi- neering staff.
457	219	" 18	Messrs Bertrand	C Odell	Wanting culvert set out near Nigadoo.
458	219	" 20	C Odell	M Smith	Replying to 454.
459	219	" 25	S Fleming	"	Enquiring as to items in schedules.
460	220	" 25	M Smith	S Fleming	Progress at Nipissiguit Bridge and Jacquet River.
461	220	" 27	S Fleming	M Smith	As to item in returns, sec. 9, whether contractors are not entitled to <i>borrowing</i> instead of earth price.
462	220	" 27	M Smith	S Fleming	Replying to above.
462	221	" 27	"	"	Same as above.
463	221	" 28	"	P A Peterson	Masonry positively to be stopped; suggesting temporary bridge at 285.
464	221	" 29	Messrs Bertrand	"	Wanting plan of overhead bridge at Tête-à-gauche.
465	222	" 29	S Fleming	R Jones	Submitting estimates of value of work to be done.
466	223	" 29	"	"	Abstract of quantities, Section No. 9.
467	224	" 29	"	"	" " " 15.
468	225	" 29	"	"	Estimate of work to be done, No. 9.
469	226	" 29	"	"	" " " " 15.



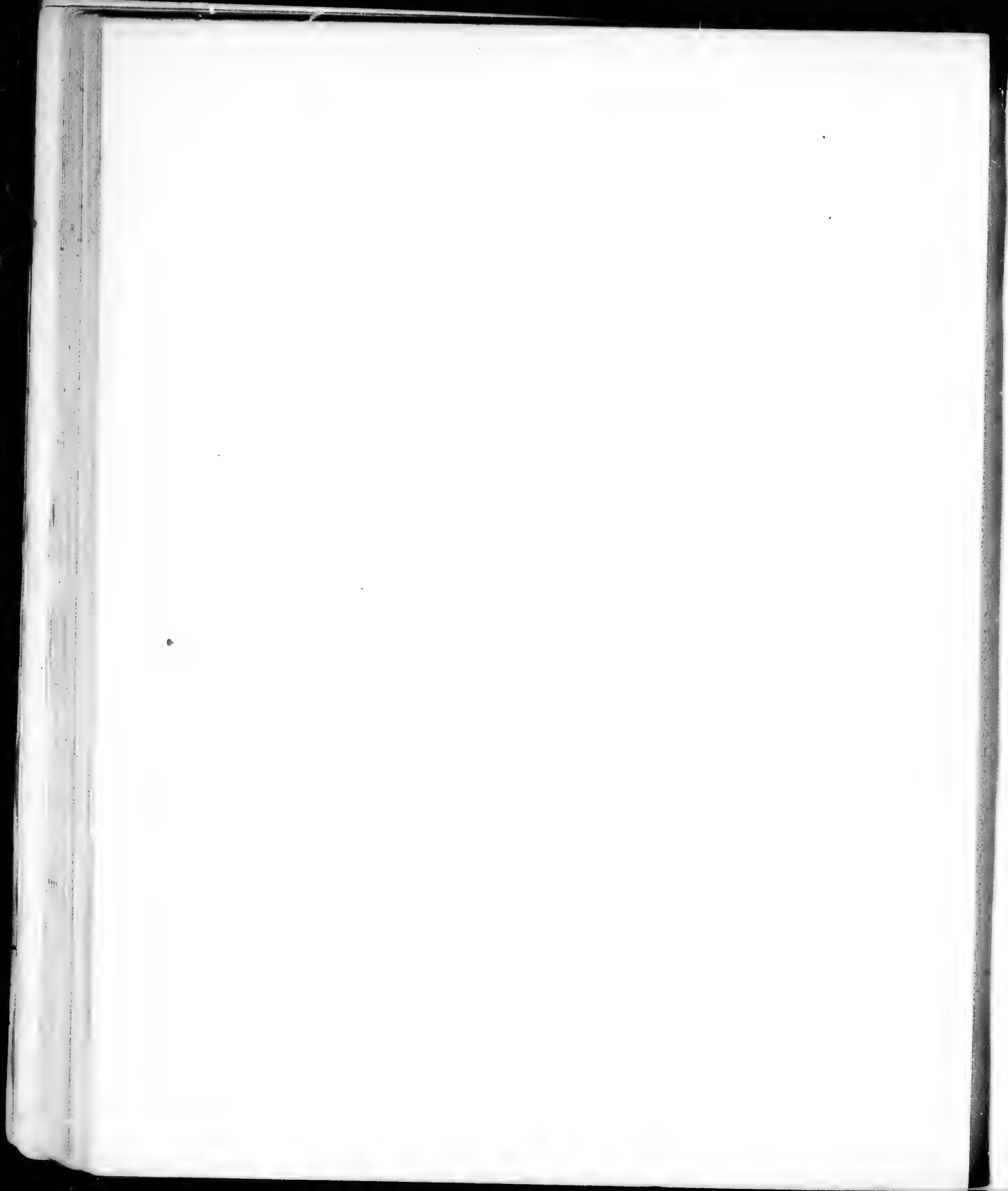
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
470	227	1871 Nov 29	S Fleming	R Jones	Contractor's estimate of work to be done, Dec. 1st, 1871, on Contract 9.
471	228	" 29	"	"	Same as above, Contract 15.
472	229	" 30	S Fleming	R Jones	Quoting from Mr. Smith's letter (453) as to difficulty in arriving at close approximation in earth works.
473	229	Dec. 1	P A Peterson	M Smith	Masonry stopped, except at Middle and Little Rivers; Bertrand will put up temporary bridge.
474	230	" 2	"	"	Contractor wants plans of all structures on line to prepare stone by.
475	230	" 4	M Smith	P A Peterson	Give contractor list of culverts, with length and general drawings.
476	231	" 11	P A Peterson	M Smith	As to plans for Grant's Brook and mill stream.
477	231	" 12	Messrs Bertrand	C Odell	Wanting plan of structure at Ferguson's Brook.
478	232	" 12	M Smith	P A Peterson	Replying to 476; abutments for iron bridges " must not vary."
479	232	" 13	P A Peterson	M Smith	Respecting above.
480	233	" 14	M Smith	S Fleming	Respecting culvert at Louis' Brook.
481	234	" 14	"	P A Peterson	" " "
482	234	" 15	P A Peterson	M Smith	Explaining " "
483	235	" 15	M Smith	R Jones	Respecting reduction of engineering staff.
484	236	" 16	C Odell	M Smith	Bertrand wants plan of structure at Fournier's Brook; will build 10 feet arch instead of 20 feet beam bridge.
485	237	" 18	J B Bertrand	P A Peterson	Desiring profile to be returned.
486	237	" 19	P A Peterson	M Smith	Plan for road bridge; Station 583 will not answer.
(486)	237	" 19	M Smith	P A Peterson	To make Louis' Brook a 10 foot arch.
487	237	" 19	J B Bertrand	C Odell	Wanting quantities of masonry at Nigadoo, Elmtree and Belledune.
488	238	" 20	M Smith	"	Respecting structure at Fournier's Brook.
489	238	" 20	"	P A Peterson	As to bridge at 583.
490	238	" 21	S Fleming	M Smith	Wanting approximate estimates;—to be liberal.
491	239	" 21	"	"	Replying to 480, as to Louis' Brook culvert; not to be less than 10 feet.



No.	Page	Date.	From.	To.	Subject Matter.
492	239	1871 Dec 22	M Smith.....	C Odell.....	Giving new schedule of prices for stone.
493	239	" 25	C Odell.....	M Smith.....	Returns despatched before receipt of above; need not alter certificates, as quantity of stone is small.
494	240	" 29	P A Peterson.....	".....	Respecting bridge at 583.
495	240	" 30	M Smith.....	T R Burpé.....	No clerk left to write out monthly reports.
496	240	1872. Jan. 2	P A Peterson.....	M Smith.....	Respecting cedar in overhead bridges; also timber for bridge at 583.
497	241	" 3	".....	".....	Enclosing plan of arch at Peter's River.
498	241	" 3	M Smith.....	P A Peterson.....	Enclosing tracings of bridge at 583.
499	241	" 4	C J Brydges.....	M Smith.....	Does not concur in views respecting reduction of staff.
500	242	" 6	M Smith.....	P A Peterson.....	Desiring to know the force employed at each of the quarries on section, dimensions of structures, etc.
501	243	" 8	".....	".....	Returning plan of culvert for Peter's River, with remarks.
502	243	" 8	P A Peterson.....	M Smith.....	Contractor cannot get timber of sufficient length to make stringers for bridge at 583.
503	243	" 8	M Smith.....	C Odell.....	Chief Engineer wants profile, etc.
504	244	" 10	".....	P A Peterson.....	As to overbridge, 583, stringers can be broken.
505	244	" 15	S Fleming.....	Hon H L Langevin....	Report referring to application of contractors for increased certificates, an increase of 20 per cent. required.
506	245	" 18	The Commissioners....	The Council.....	Report on the report of Mr. Fleming (505).
506	245	" 20	Com. of Privy Council..	".....	Advising that the report of the Chief Engineer, as above, be approved and adopted.
507	246	" 20	S Fleming.....	M Smith.....	Enclosing copies of contractor's estimates and informing him of increase in rates.
508	247	" 20	M Smith.....	C J Brydges.....	Replying to 499, respecting staff.
509	248	" 25	Messrs Bertrand.....	C Odell.....	Desiring to know if the works at Armstrong's Tunnel are satisfactory.
510	248	" 26	S Fleming.....	R Jones.....	Respecting increased certificates. Impossible to observe the condition that the contract sum must not be exceeded.

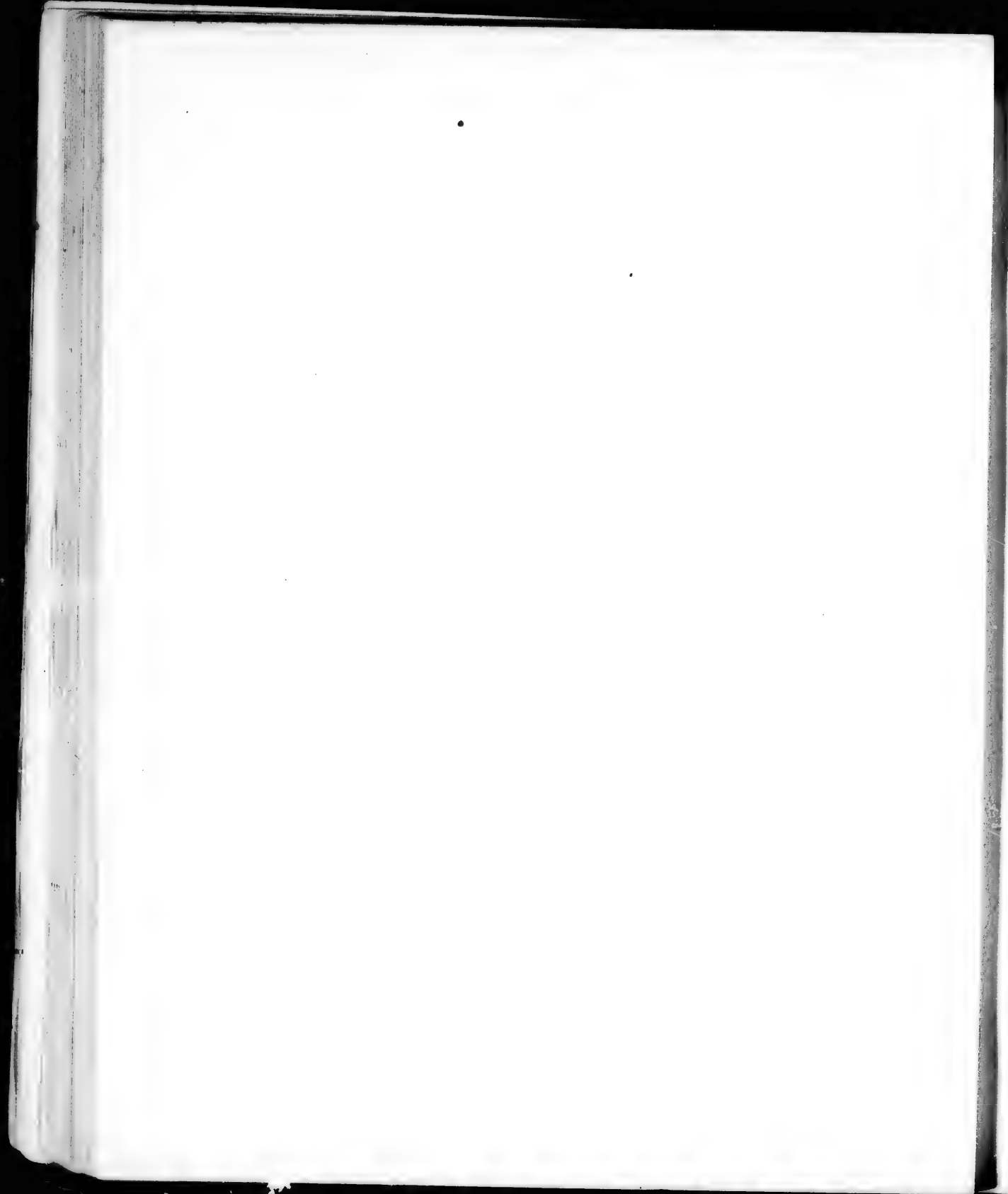


No	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
511	249	1872 Jan 26	S Fleming.....	M Smith.....	Referring to former letter (507.)
512	250	" 27	C Odell	"	Has forwarded tracings of masonry built during year.
513	250	" 29	M Smith	S Fleming	To rely confidently on quantities sent.
514	250	" 30	F Braun	R Jones.....	The Government wish to know causes of discrepancy between Contractors' and Engineers' bill of works.
515	251	Feb 2	M Smith.....	P A Peterson.....	Enclosing Contractors' quantities. Explanation of discrepancy to be prepared.
516	251	" 2	"	C Odell	Same as above.
517	252	" 3	C Odell	M Smith.....	Enclosing certificate. Letter above received.
518	252	" 3	P A Peterson.....	"	Bertrand has never taken re-measurements; must have made them up from progress profile.
519	253	" 5	"	"	Mistakes in Contractors' quantities easily detected.
520	253	" 5	A Walsh.....	Council	Report giving rates recommended by Commissioners.
521	254	" ..	Committee of Privy Council .....	.....	Advising that the above report be approved and adopted.
522	255	" 6	M Smith.....	C Odell	Wanting progress profile, section book, etc. Contractors' quantities worthless.
523	255	" 7	P A Peterson.....	M Smith.....	Enclosing profile and statement of earth work. Contractor wrong.
524	256	" 7	"	"	Giving items of difference in statements of Contractors and Engineers. Contractor "wrong at every point."
525	257	" 9	M Smith.....	S Fleming	Contractors' quantities worthless.
526	257	" 9	C Odell	M Smith.....	Enclosing statement in answer to contractors.
527	258	" 9	M Smith.....	C Odell	Enclosing form of entering dimensions.
528	258	" 9	P A Peterson.....	M Smith.....	Has never seen or heard of any one making measurements.
529	259	" 9	C Odell	"	Same as above.
530	259	" 15	Messrs Berlinguet and Messrs Bertrand ..	R. Jones.....	Amount of warrants unsatisfactory; asking for copies in detail of engineer's returns.
531	259	" 15	Messrs Bertrand	C Odell	Measurements received.
532	260	March 2	C J Brydges.....	A. Walsh	Contractors will go on with work.

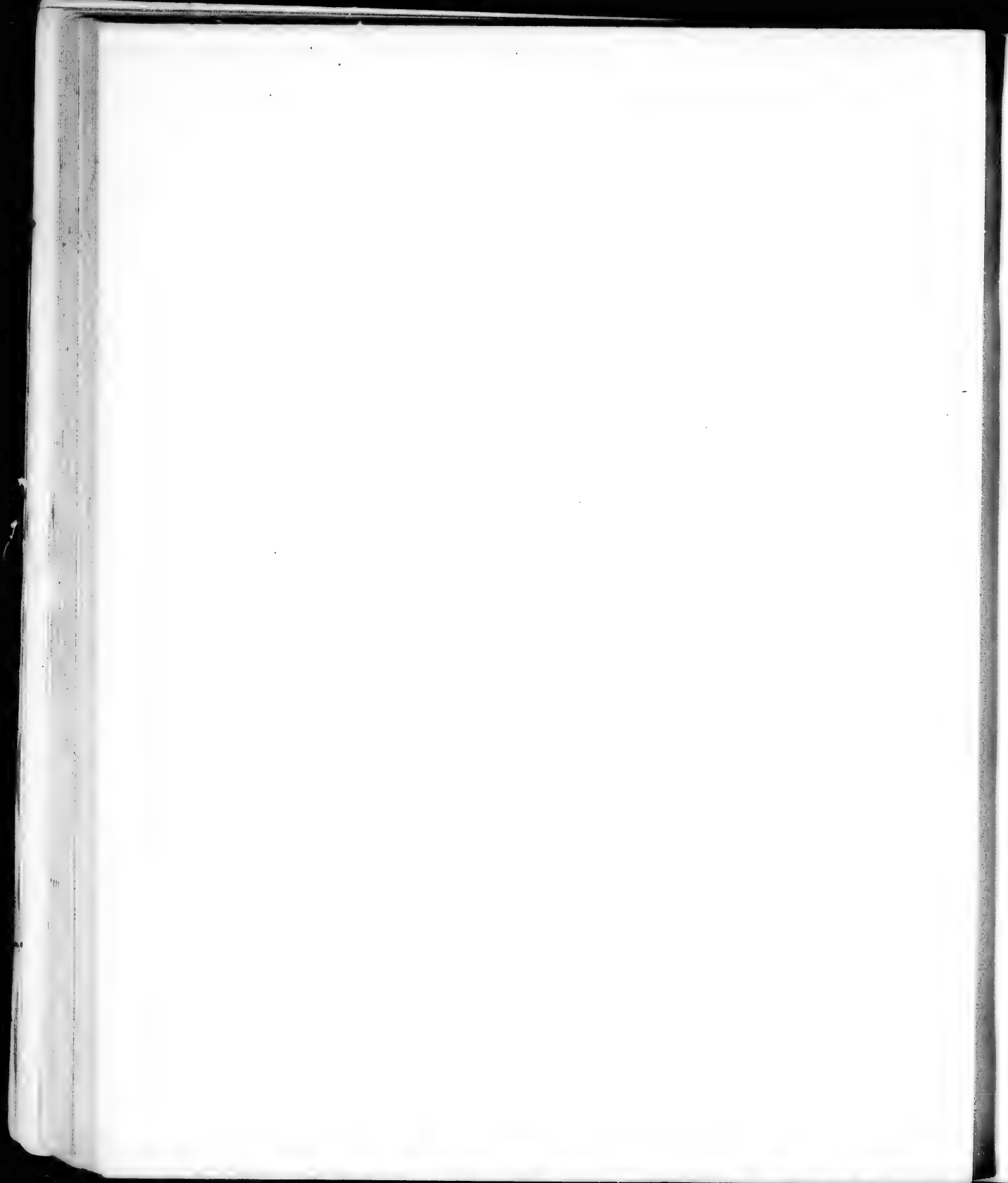


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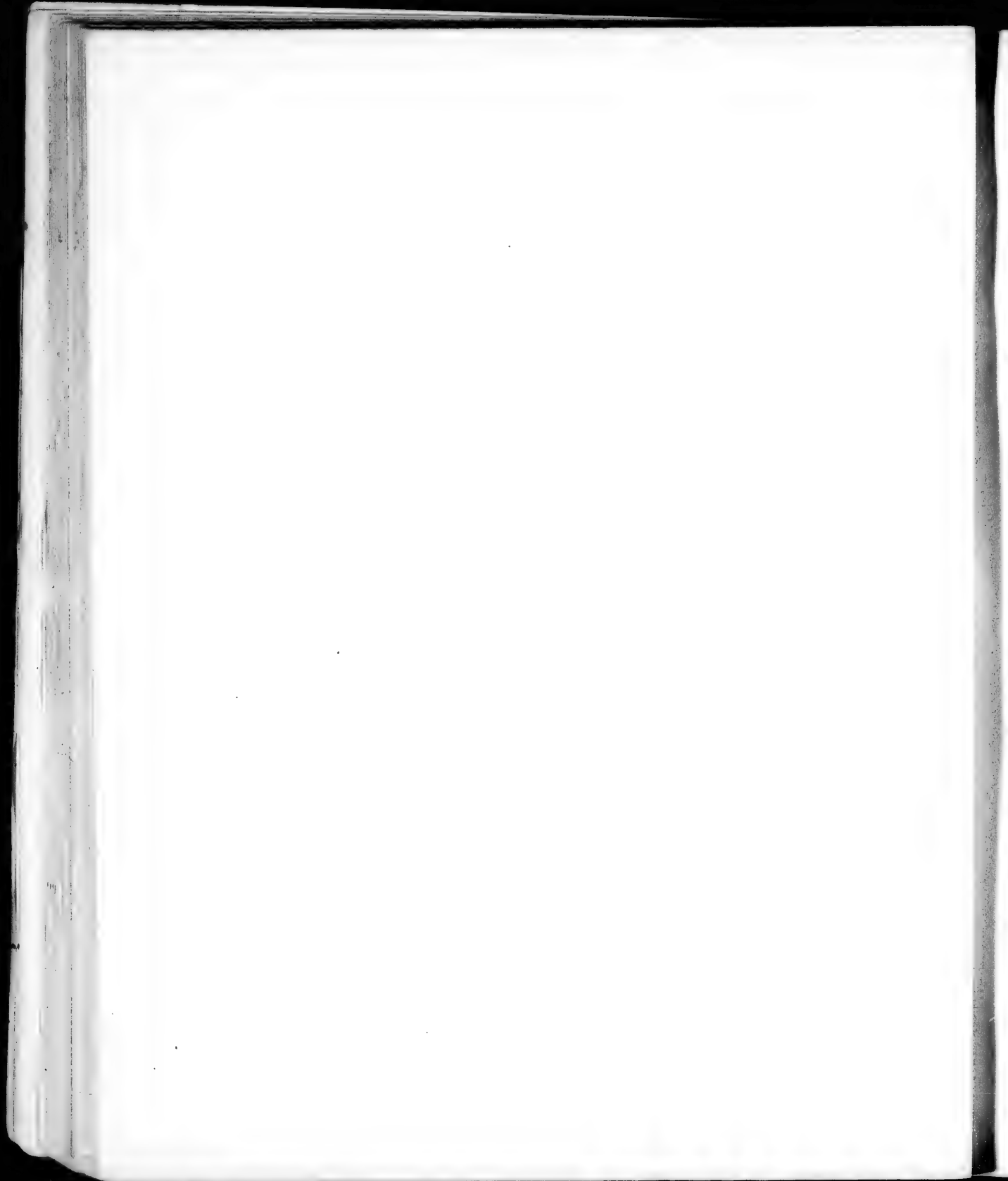
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
533	260	1872 March 5	P A Peterson.....	M Smith.....	Has checked quantities; finds all correct; can easily show where contractor is wrong.
534	261	" 6	M Smith.....	C Odell.....	Respecting difference in quantities at Armstrong's Brook Tunnel.
535	261	" 6	C Odell.....	M Smith.....	Explaining above.
536	261	" 7	Messrs Bertrand.....	C Odell.....	Desiring him to see that tunnel is finished satisfactorily.
537	261	" 9	C Odell.....	M Smith.....	99 per cent of tunnel completed.
538	262	" 11	R Jones.....	Messrs Bertrand.....	Respecting claims of the heirs of Robert Fulton and Justice Spalm.
539	262	" 18	S Fleming.....	M Smith.....	Enclosing revised schedules.
540	263	" 18	Messrs Bertrand.....	C Odell.....	Asking permission to build culvert at 634+75 in dry masonry.
541	263	" 23	C Odell.....	M Smith.....	Respecting above.
542	263	" 26	M Smith.....	C Odell.....	Respecting above; no objection.
543	264	April 2	".....	".....	Requiring copy of contractors' quantities of work to be done.
544	264	" 8	Glover & Fry.....	R Jones.....	Returning documents sent for signature.
545	264	" 22	C Odell.....	M Smith.....	Replying to 543, enclosing contractors' statement.
546	265	" 23	P A Peterson.....	".....	Enclosing a copy of contractors' quantities.
547	265	" 26	R Jones.....	Messrs Bertrand.....	Mr. Ferguson to have undercrossing and culvert.
548	265	May 1	S Fleming.....	L G Bell.....	Formation level of culverts to be never less than four feet above paving.
549	266	" 2	L G Bell.....	C Odell.....	Repeating above.
550	266	" 2	".....	".....	Respecting dry culverts; has given no directions.
551	266	" 3	P A Peterson.....	L G Bell.....	Enclosing estimates; previous returns correct; Contractor does not want measurements made.
552	267	" 11	R Jones.....	".....	Stating order of Commissioners for his personal estimate and report of work remaining to be done.
553	268	" 14	".....	Messrs Bertrand.....	As to complaints of Mr. Ferguson that fences are not put up properly.
554	268	" 15	T Glover.....	A Walsh.....	Asking for increased estimates on ground of increased price of labor and material.
555	268	" 16	S Fleming.....	".....	As to computation of rates.



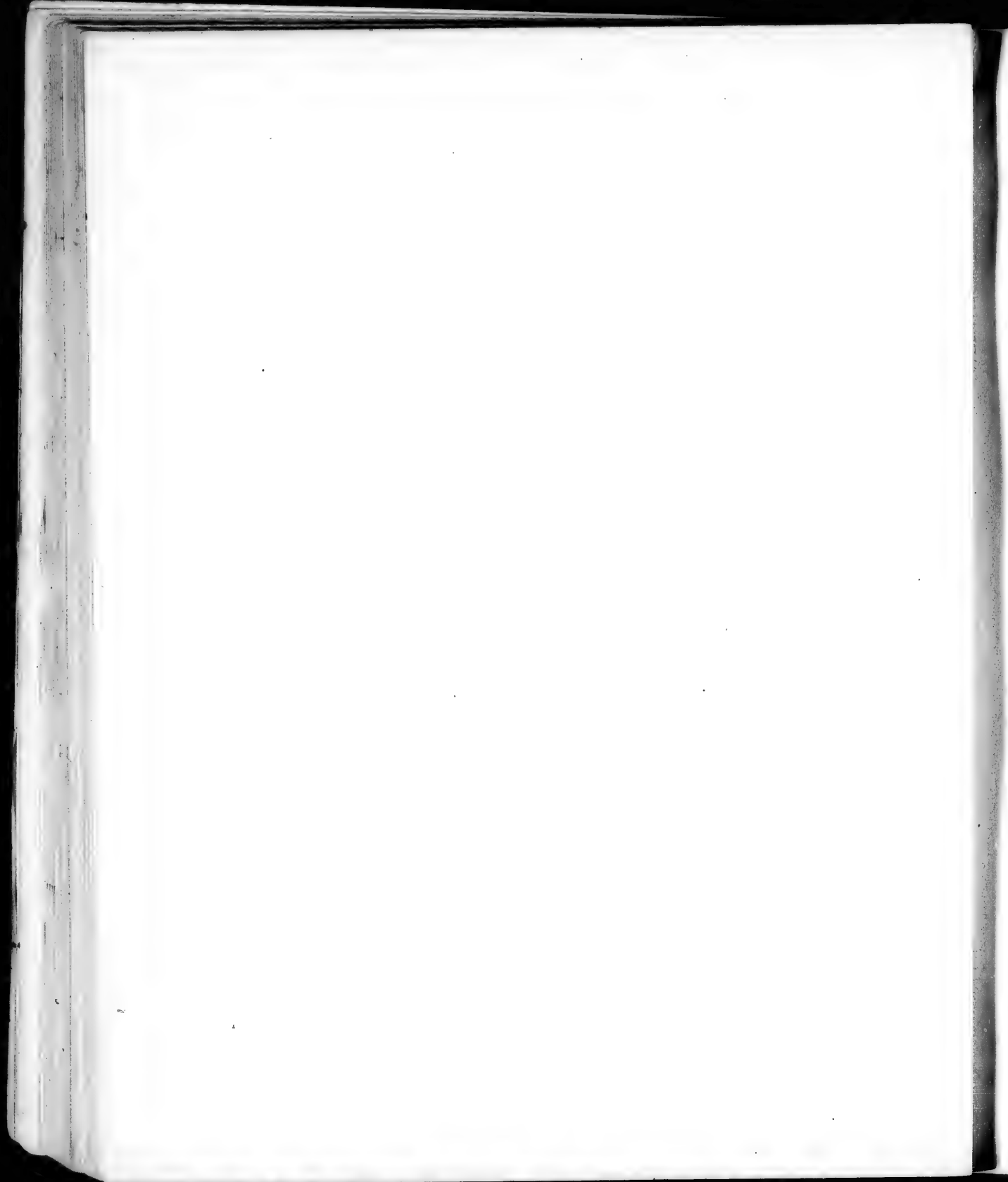
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
556	268	1872 May 16	S Fleming.....	L G Bell.....	Giving general directions for guidance.
557	270	" 17	R Jones	"	Contractors are having measurements made for themselves.
558	270	" 17	S Fleming	"	Engineers to show Contractors' Engineers all sections, etc., desired, and to facilitate inquiry.
559	270	" 20	"	R Jones	Informing him of having given above directions.
560	271	" 22	T Glover.....	"	Respecting appointment of Mr. Thompson on No. 9 Section.
561	271	June 7	S Fleming	L G Bell.....	Making correction in returns.
562	271	" 7	L G Bell.....	S Fleming	Enclosing measurements; Contractors object to having measurements made.
563	271	" 7	W G Thompson.....	J B Bertrand.....	Giving general report of state of work.
564	272	" 7	W H Lee	Commissioners	Copy of report of Privy Council advising that rates established by orders of 10th Feb. and 5th April be continued to end of June.
565	273	" 22	Messrs Bertrand.....	C Odell	Wanting line of fence, also plans for farm crossings.
566	273	" 25	W Howe	R Jones	Enclosing memorial from Contractors.
567	273	" 25	Messrs Berlinguet & Messrs Bertrand..	The Commissioners.....	The memorial referred to above; showing difficulties and asking relief.
568	275	July 1	L G Bell.....	S Hazlewood	Enclosing tracings of approaches to level crossings.
569	276	" 8	"	"	Out of place, see below.
570	276	" 1	"	P A Peterson.....	As to specification for wooden bridges. The timber on No. 15 very unsuitable.
571	277	" 2	P A Peterson.....	L. G. Bell.....	Will call Bertrand's attention to quality of timber delivered for cattle guard, etc.
572	277	" 2	L G Bell.....	C Odell	Plan for culvert at Fournier's Brook not approved.
573	277	" 3	C Odell	L G Bell.....	Delay in getting out quantities, contractors having been going all over the works.
574	278	" 6	L G Bell.....	S Fleming	Work going on well, but the men don't work enough. Inspector says he is at their mercy.
575	278	" 12	S Fleming	L G Bell.....	Appointing Inspectors of Masonry. About to leave for the west. Requesting attention to plans, specifications and instructions.



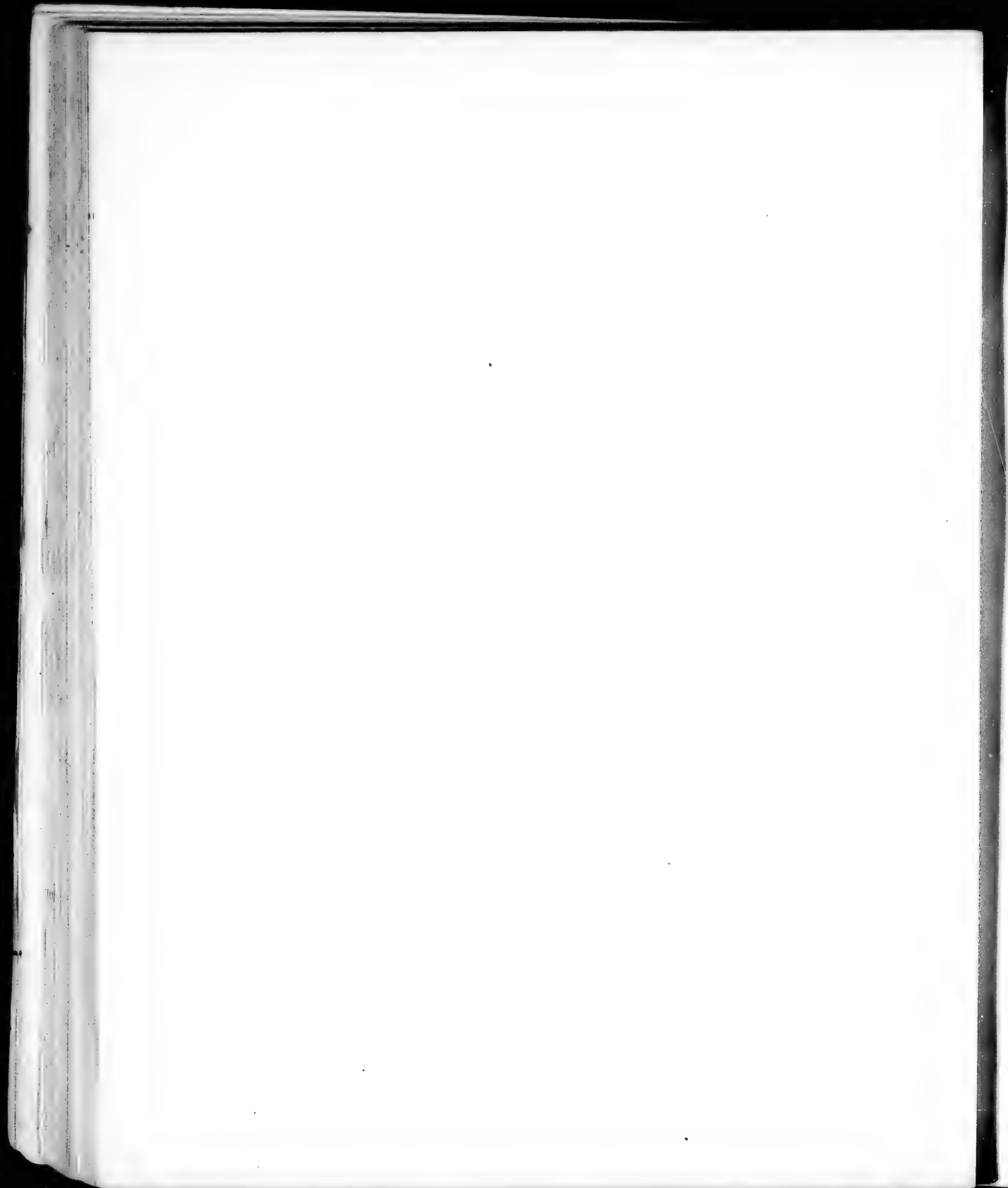
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
576	279	1872 July 12	P A Peterson.....	L G Bell.....	Fencing between Stations 89 and 100 has been put up at wrong distance.
577	280	" 15	S Fleming.....	R Jones.....	Mr. Bell instructed to revise measurements with contractor's engineers, so as to get a bill of quantities admitted by both. Contractors doing well; but expenses heavy.
578	280	" 15	C Odell.....	L G Bell.....	As to fence.
579	281	" 17	R Jones.....	".....	Wanting measurements of work still to be done.
580	281	" 18	".....	".....	Wanting measurements of work still to be done.
581	281	" 18	L G Bell....	R Jones.....	Replying to above.
582	282	" 18	Messrs Bertrand.....	C Odell.....	Wanting plans of wooden bridges, sign boards, etc. All measures taken to have Section 9 completed in October.
583	282	" 18	C Odell.....	L G Bell.....	Contractors want plans of sign boards.
		1871			
584	283	July 22	M Smith.....	C Odell.....	<i>Out of place.</i> Change of arch culvert, Station 143, Section 9, to double box allowed.
585	283	" 25	".....	P A Peterson.....	<i>Out of place.</i> The Chief Engineer dissatisfied with stone cut near the Nipissiguit. Alteration in Inspectors.
		1872			
586	284	Aug 2	L G Bell.....	S Fleming.....	Big cutting at Nipissiguit going on.
587	284	" 5	C Odell.....	L G Bell.....	Estimate enclosed. Delayed through Contractors having worked "all over the contract."
588	284	" 7	L G Bell.....	P A Peterson.....	Replying to 576, to let fence stand
589	285	" 7	".....	C Odell.....	Replying to 578, to same effect.
590	285	" 10	Glover & Fry, Dunn & Home.....	R Jones.....	Desiring cash statement of Sections 3, 6, 9 and 15, being surprised at lowness of estimates.
591	286	" 10	C J Brydges.....	L G Bell.....	Wanting to know as to measurements.
592	286	" 10	P A Peterson.....	".....	Respecting foundation at Louis' Brook, Station 107, soft, sticking mud. Bertrand suggests packing in boulders.
593	286	" 10	L G Bell.....	J B Bertrand.....	Wanting to see Thompson's measurement and report.



No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
594	287	1872 Aug 10	L G Bell.....	C Odell	Asking if Thompson's measurements are finished.
595	287	" 10	"	C J Brydges.....	Thompson's measurements ready, but he has not seen them. Fitzgerald's nearly ready.
596	287	" 12	J B Bertrand	L G Bell.....	Berlinguet to show Thompson's report.
597	287	" 12	L G Bell.....	P A Peterson.....	Disapproving plan proposed by Bertrand, at Louis' Brook.
598	288	" 14	"	R Jones.....	Estimate of Contractor's Engineers received; will examine.
599	288	" 14	"	J McMillan.....	Having to go minutely into differences in estimates, desires all papers on subject got ready.
606	289	Aug 20	J S Fry	L G Bell.....	Introducing Mr. Blumhart.
607	289	" 22	C J Brydges	"	Wanting particulars of measurements by contractors.
608	289	" 22	L G Bell.....	C J Brydges	Replying to above. Only 6 and 9 ready.
609	289	" 22	C J Brydges	L G Bell.....	To report on all four sections.
610	289	" 23	L G Bell.....	P A Peterson.....	Wanting measurements to be prepared.
611	290	" 23	"	"	Respecting payment on account of works dispensed with.
612	290	" 21	P A Peterson	L G Bell.....	Respecting measurements.
613	291	" 28	L G Bell	P A Peterson.....	" "
614	291	" 29	"	R Jones	Report on work remaining to be done as against statements of Contractors' Engineers.
615	293	" 29	"	"	Table showing state of works.
616	294	" 31	"	Messrs Bertrand	Giving general particulars of report as above.
617	295	" 31	"	R Jones	Denomination of items omitted in report.
618	295	Sept 2	"	C Odell.....	As to method for allowing Contractors for reduction in work.
619	296	" 3	"	R Jones	Certificates telegraphed embrace results of written report.
620	296	" 3	"	"	Memo. of amounts on certificates to 31st August.
621	296	" 4	J S Fry	C J Brydges	Respecting Thompson's report enclosed; desiring attention to it.
622	298	" 4	Glover & Fry.....	R Jones	Enclosing copies of Fitzgerald's and Thompson's reports, to be laid before Commissioners.

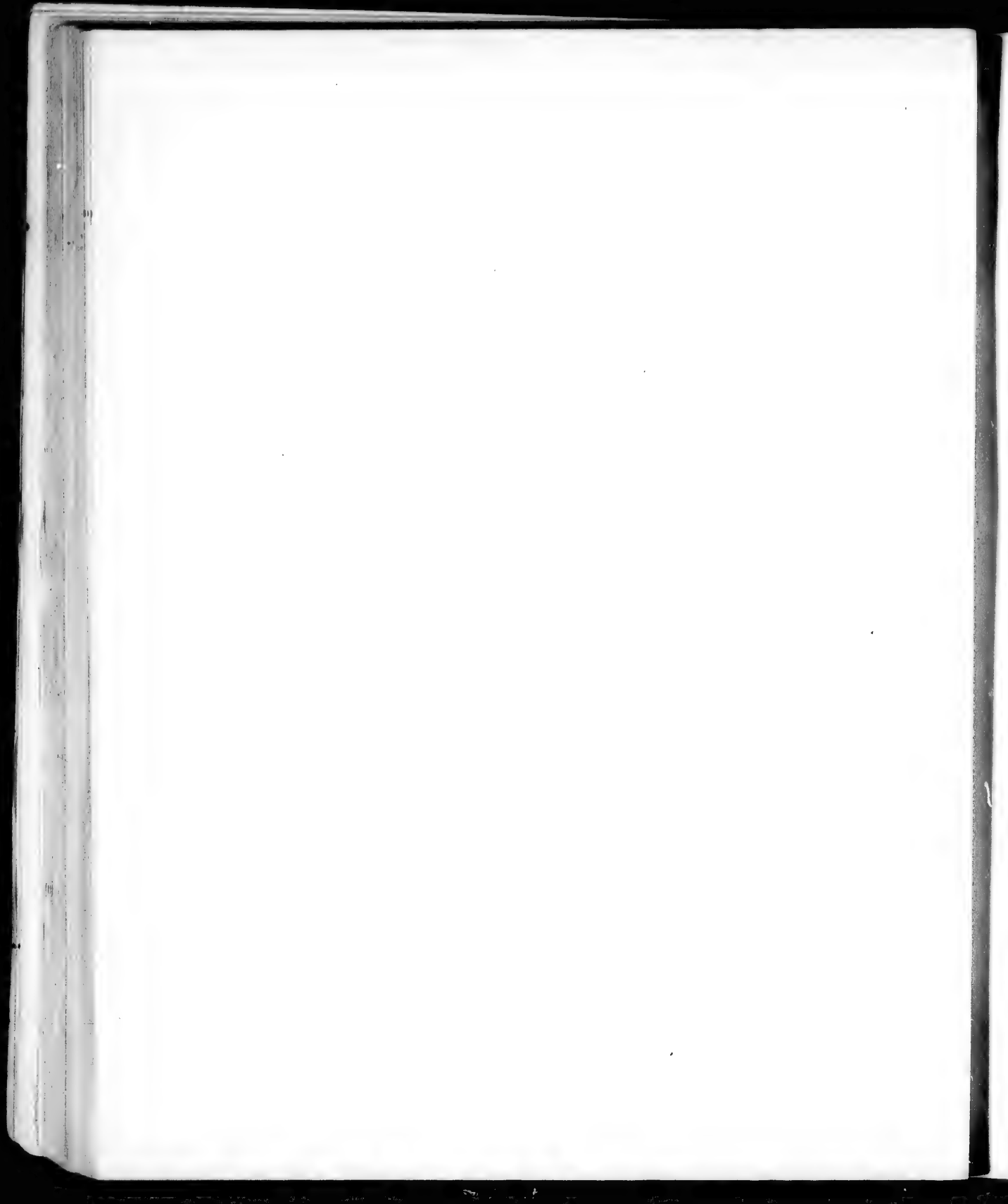


No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
623	299	1872 Sept 4	R Jones	L G Bell.....	Wanting revised quantities.
624	299	" 4	L G Bell.....	R Jones	Certificates telegraphed are based on revised quantities. Contractors have full benefit.
625 299 626 300 627 301	}	" 6	L G Bell.....	R Jones	Report to Commissioners as to works done and to be done on Contract 15, with schedules annexed for No. 9.
628	301	" 7	Messrs Bertrand.	L G Bell.....	Wishing to build culvert independent of arch for crossing at Station 325, Contract 15.
629	302	" 9	R Jones.....	Messrs Bertrand.....	Referring to letter 538, respecting a claim by the estate of Justice Spalm and R. Fulton.
630	302	" 9	P A Peterson.....	L G Bell.....	Respecting Ferguson's crossing (letter 628).
631	302	" 10	L G Bell.....	R Jones	Respecting above; whether it must be built at Sta. 325.
632	303	" 11	Berlinguet for Bertrand	The Commissioners....	Desiring copies of monthly returns to be supplied regularly.
633	303	" 12	" "	Commissioners.....	Results of measurements by Thompson and Fitzgerald; demanding the reason why warrants do not cover engineers' certificates.
634	305	" 13	J B Bertrand.....	R Jones	Forwarding a letter from Mr. W. G. Thompson.
635	305	Oct 29	L G Bell.....	S Fleming.....	Report on work on 9 and 15.
636	306	Nov 1	"	A Walsh.	Respecting Hon. John Ferguson's Bridge and water pipe.
637	306	" 7	A Walsh.....	L G Bell.....	Answer to 636.
638	307	" 8	Chas Odell.....	"	Puddle on arch for Peter's River.
639	307	" 21	"	"	Is it advisable to lay bridge seat at Grant's Brook?
640	307	" 23	L G Bell.....	C Odell	Answer to 639.
641	307	Dec 3	C Odell	L G Bell	Well advanced in making out quantities of work remaining to be done.
642	308	" 4	"	"	Mailed certificates and statement of quantities.
643	308	" 4	S Fleming	"	Commissioners anxious to have certificates and returns.
644	308	" 5	L G Bell....	S Fleming	Certificates made out on basis of measurement of work remaining to be done.
645	308	" 9	"	"	Further explaining 644.
646	309	" 11	S Fleming	L G Bell.....	What has been done about Hon. J. Ferguson's Bridge?



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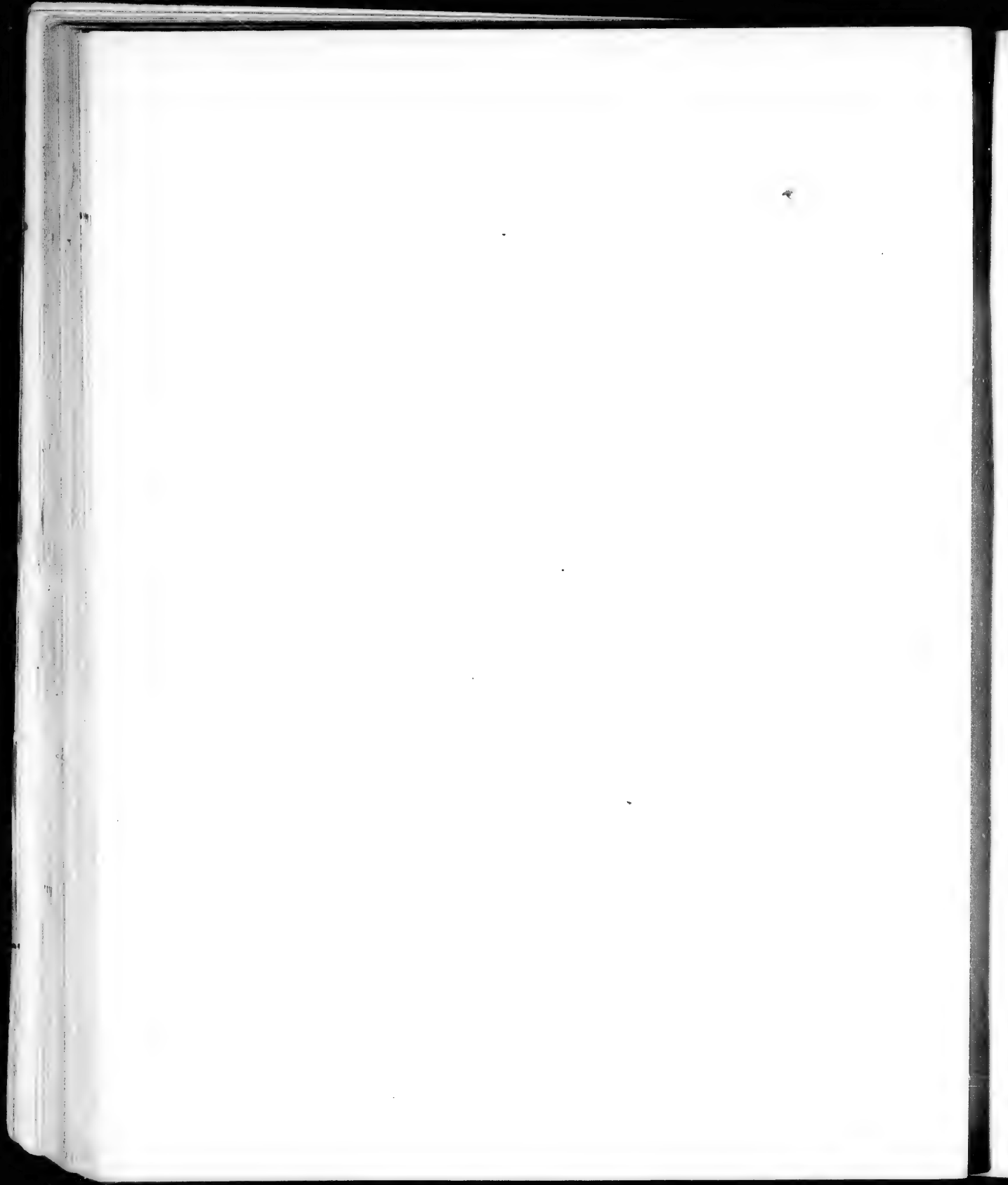
No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
647	309	1872 Dec 12	L G Bell.....	S Fleming	Answer to 646.
648	300	" 12	S Fleming.....	L G Bell.....	Hon. J. Ferguson wants either a culvert over present wooden water pipe or a new iron pipe.
649	310	" 21	L G Bell.....	S Fleming.....	Explanations about Hon. J. Fergu- son's water pipe.
650	310	" 31	"	"	Explanations of difference between two statements of work remain- ing to be done, as estimated by two distinct methods.
1873.					
651	314	Jan 6	C Odell	L G Bell.....	With schedules of work remaining to be done.
652	314	" 11	L G Bell.....	C Odell	Asks explanation of some items in schedules sent with 651.
653	315	" 13	C Odell	L G Bell.....	Contractor wants statement of work remaining to be done according to late measurements.
654	315	" 14	L G Bell.....	C Odell	Not to give contractor the statement of quantities yet.
655	316	" 17	C Odell.....	L G Bell.....	Reply to 652.
656	317	" 22	S Fleming.....	"	Asking exact duplicates of bills of quantities, and rates used in progress estimates.
657	317	" 22	C Odell.....	"	With extracts from diaries.
658	318	" 29	S Fleming.	"	With sketch of iron pipe for Hon. J. Ferguson.
659	318	" 29	L G Bell.....	C Odell.....	Mr. Fleming wishes to have the usual record drawings.
660	318	Feb 1	"	S Fleming	Sends schedules and rates used for progress estimates.
661	319	" 3	"	"	With a sketch of sign boards ordered by Commissioners.
662	319	" 3	Berlinguet & Bertrand..	Commissioners	With statement of cost of works, and requesting payment of \$125,000 on each section.
663	322	" 3	L G Bell.....	J B Bertrand.....	Caution against getting inferior tim- ber for fences.
664	322	" 4	C Odell.....	L G Bell.....	With progress estimates. Nothing going on on 9, except getting out fence rails.
665	322	" 5	R Jones	Berlinguet & Bertrand..	Commissioners have no control over their expenditure.
666	322	" 7	L G Bell.....	C Odell.....	Asks for statement of work going on.
667	323	" 10	"	"	Forwards instructions from Mr. Fleming about Hon J Ferguson's water pipe.



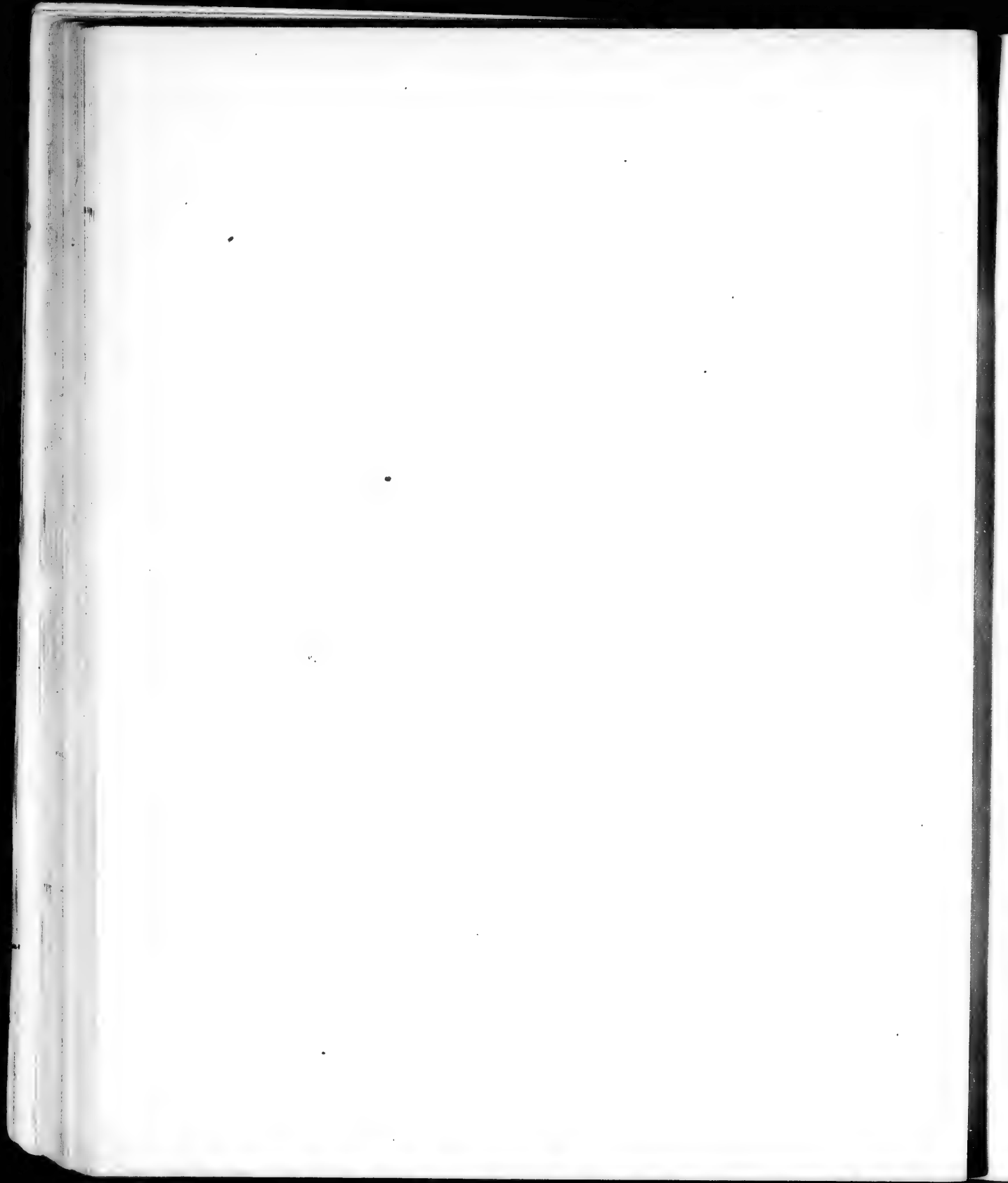
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
668	323	1872 1873 Feb 12	C Odell	L G Bell.....	With diary extracts and labour returns.
669	323	March 11	S Fleming	"	Sends a sketch of sign boards.
670	324	April 10	"	R Jones	With certificates at Order-in-Council prices. At these prices contract sums will soon be reached.
671	324	" 16	"	"	With statement of value of work still to be done at Order-in-Council prices, and balance of contract sums unpaid.
672	325	" 25	L G Bell.....	C Odell	Asks for regular detailed labour returns.
673	325	May 2	S Fleming	L G Bell.....	With complaint of Jas. R. White about his crossing.
674	325	" 7	"	"	Hon. J. Ferguson's crossing to be fairly passable and with good approaches.
675	325	" 10	L G Bell.....	C Odell	Asking about James R. White's crossing.
676	326	" 14	C Odell	L G Bell.....	Reply to 675.
677	326	" 14	L G Bell.....	C Odell	Asks about Hon. J. Ferguson's crossing.
678	327	" 16	"	S Fleming.....	Reply to 673.
679	327	" 28	Berlinguet & Bertrand..	Commissioners	Unable to continue works.
680	328	" 29	R Jones.....	S Fleming.....	With statement of claims by Berlinguet & Bertrand for extras.
681	328	" 24	Berlinguet & Bertrand..	Commissioners	Claims for extras, enclosed in 680.
682	333	" 29	Committee of the Privy Council .....	.....	Advising that the Commissioners be authorized to take work out of contractors' hands.
683	333	" 30	Committee of the Privy Council .....	.....	Advising that the Commissioners be authorized to pay arrears of wages due to labourers.
684	334	" 30	The Commissioners	Messrs Bertrand	Giving notice of intention to take works out of their hands, Sec. 9.
685	335	" 30	"	Messrs Glover & Fry ..	Giving notice of intention to take works out of their hands, Sec. 9.
686	335	" 30	"	Messrs Bertrand.....	Giving notice of intention to take works out of their hands, Sec. 15.
687	336	" 30	"	"	Giving notice of intention to take works out of their hands, Sec. 15.
688	337	" 31	The Committee of the Privy Council.....	The Commissioners....	Advising that Commissioners be informed that they should have reduced rates from 1st July without application to Council.



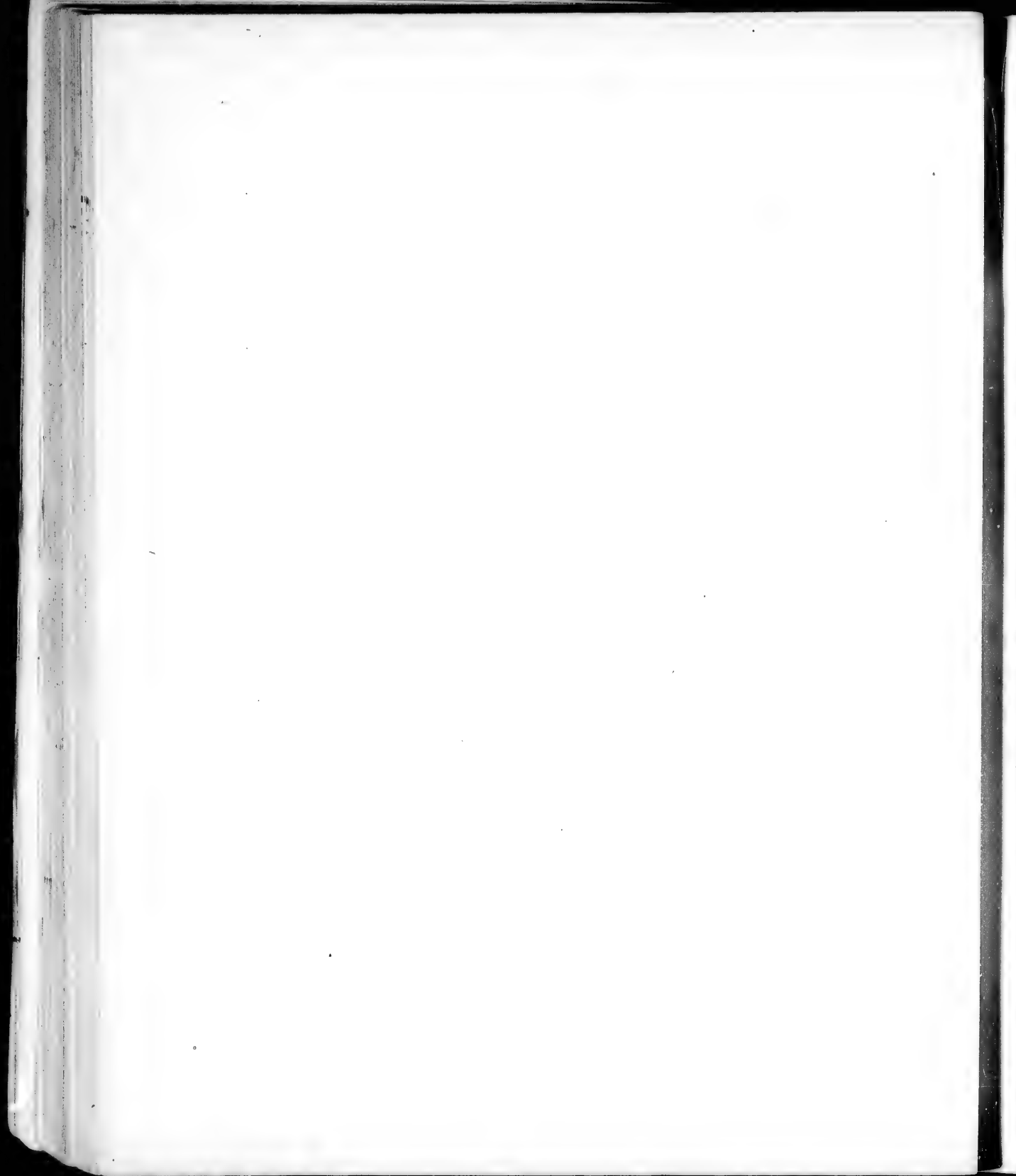
No.	Page	DATE.	FROM.	TO.	SUBJECT MATTER.
		1873.			
689	338	May 31	S Fleming.....	R Jones.....	Statement showing financial position on 1st May.
690	338	" 31	"	L G Bell	Notifying him of assumption of contract by Commissioners.
691	339	June 2	L G Bell.....	C Odell.....	Same as above.
692	339	" 3	S Fleming.....	L G Bell.....	Enclosing bills of extra claims for criticism.
693	339	" 9	Commissioners.....	Messrs Bertrand.....	Notice of having taken works out of their hands for Section 9.
694	340	" 9	"	"	Notice of having taken works out of their hands for Section 15.
695	340	" 9	"	Messrs Glover & Fry,...	Notice of having taken work out of their hands for Section 9.
696	341	" 9	"	" "	Notice of having taken works out of their hands for Section 15.
697	341	" 9	R Jones.....	L G Bell.....	Wanting estimates for all four Sections.
698	341	" 10	L G Bell.....	S Fleming.....	Enclosing certificates.
699	342	" 11	C Odell.....	L G Bell.....	As to Ferguson's Bridge.
700	342	" 12	L G Bell.....	C Odell	" "
701	342	" 17	S Fleming.....	L G Bell.....	Wanting statement showing causes of reductions in original quantities.
702	343	" 19	L G Bell.....	S Fleming.....	Giving certificates required in 697.
703	343	July 7	"	"	Enclosing certificates for June.
704	343	" 7	C Odell	L G Bell.....	Respecting cattle guards.
705	343	" 14	R McLennan	C Schreiber.....	Respecting cars and wheels for cutting at Nipissiguit.
706	344	" 17	C Odell	"	Cars delayed.
707	344	" 26	L G Bell.....	Messrs Macdonnell.....	Wishing to know charges for ballasting.
708	344	" 26	"	H Townsend	Wanting shovels and picks.
709	345	" 26	"	C Odell	Respecting waggons for cutting at Nipissiguit.
710	345	" 29	C Odell	L G Bell.....	Respecting foremen, carts, etc., at Armstrong's Brook.
711	346	Aug 1	C Odell.....	L G Bell	Respecting engine at mill stream.
712	346	" 1	"	H Townsend	" " "
713	346	" 1	L G Bell.....	"	" " "
714	346	" 1	"	M Murphy.....	" " "
715	346	" 1	M Murphy	L G Bell	" " "



No.	Page	DATE	FROM.	TO.	SUBJECT MATTER.
716	347	1873 Aug 1	H Townsend	C Odell	Respecting engine at mill stream.
717	347	" 1	C Odell	L G Bell	" " "
718	347	" 1	L G Bell	C Odell	" " "
719	347	" 2	H Townsend	L G Bell	" " "
720	347	" 2	H MacLeod	"	" " "
721	347	" 2	L G Bell	H F Donkin	" " "
722	348	" 5	J McMillan	L G Bell	Desiring list of land-owners and occupiers of Crown Lands on Contract 9.
723	348	" 13	J B Bertrand	C Odell	Have timber for sign boards.
724	348	" 15	"	Commissioners	Respecting waggons for Nipissiguit cut.
725	349	" 16	L G Bell	C Odell	Respecting waggons for Nipissiguit cut.
726	350	" 22	"	"	Respecting waggons for Nipissiguit cut.
727	350	Sept 2	"	"	As to laying pipes.
728	350	" 3	"	"	To give Stephenson notice before dismissing men.
729	350	" 9	S Fleming	L G Bell	Wanting report and information.
730	350	" 15	R Jones	"	" " "
731	351	" 16	L G Bell	S Fleming	Returning statement of claims for extra work by contractors with information thereon.
732	354	" 17	"	R Jones	State of work on Contract 9.
733	354	" 23	"	C Odell	About to make up monthly report.
734	355	" 23	"	"	Wishing certificates sent always by a certain day.
735	355	" 26	C Odell	L G Bell	Enclosing statement of work done during week.
736	355	" 27	L G Bell	R Jones	Weekly progress report.
737	356	" 27	"	S Fleming	Asking if monthly report is desired.
738	356	Oct 2	"	J B Bertraud	Asking for information to be given of anything injurious to works.
739	357	" 6	L G Bell	R Jones	Stating progress of work.
740	357	" 6	"	S Fleming	Enclosing copy of report.
741	358	" 11	"	T R Burpee	Enclosing weekly report.
742	358	" 11	"	R Jones	" "
743	359	" 22	"	"	" "
744	359	" 27	"	"	" "

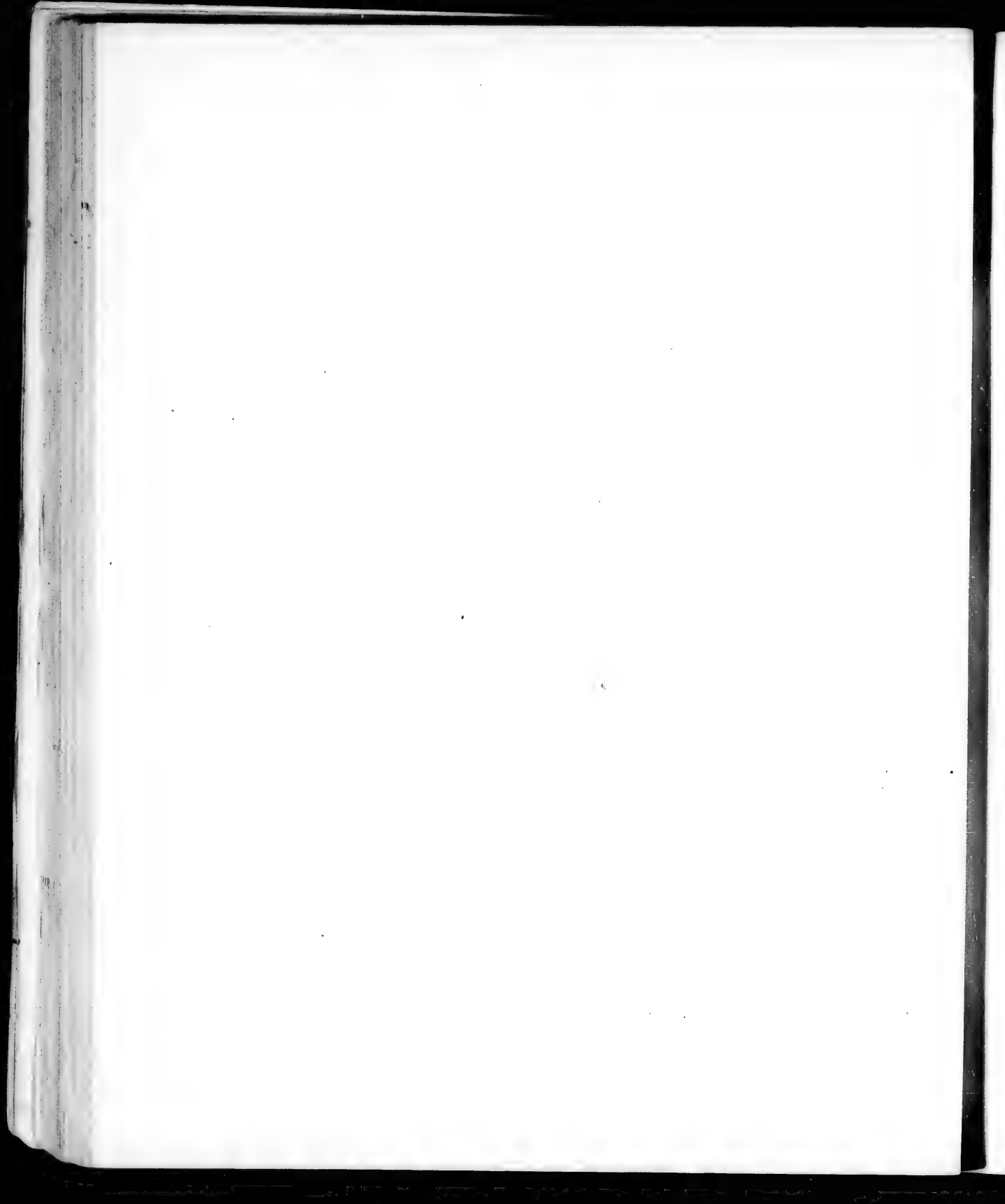


No.	PAGE	DATE.	FROM.	TO.	SUBJECT MATTER.
		1873			
745	360	Oct 30	J B Bertrand.....	L G Bell.....	Replying to 738.
746	360	Nov 4	L G Bell.....	R Jones.....	Weekly progress report.
747	361	" 10	"	S Fleming.....	" "
748	361	" 10	"	R Jones.....	" "
749	362	" 18	"	"	" "
750	362	" 28	"	C Odell.....	Respecting complaint of Alexander Morrison, as to stoppage of road across railway.
751	362	" 29	"	"	To arrange to stop work.
752	363	Dec 1	J B Bertrand.....	L G Bell.....	Mr. Berlinguet going down to arrange as to rolling stock.
753	363	" 1	L G Bell.....	C Odell.....	To have Bertrand's plant gathered up.
754	363	" 2	Messrs Berlinguet and Messrs Bertrand	Hon A Mackenzie.....	Enclosing copy of letter to the Commissioners, begging enquiry.
755	363	" 2	"	Commissioners	Asking that their claims may be referred to arbitration.
756	364	" 6	L G Bell.....	C Odell.....	Cutting at Nipissiguit may be continued during month.
757	364	" 9	C Odell.....	L G Bell.....	Respecting error in certificates.
758	365	" 19	L G Bell.....	C Odell.....	Respecting proposed survey of branch to Shippegan.
		1874.			
759	365	Jan 3	Com. of the P. Council.....		Advising that there be a reduction of 20 per cent on rates.
760	365	" 5	L G Bell.....	S Fleming.....	Enclosing certificates.
761	366	" 30	"	"	Enclosing copies of last revised schedules.
762	366	Feb 6	"	"	Enclosing certificates for work done.
763	366	" 7	F Langelier.....	Hon A Mackenzie.....	Enclosing memorandum from Messrs. Berlinguet and Messrs. Bertrand, asking what course they should follow in pressing their claims.
764	367	" 10	Messrs Berlinguet and Messrs Bertrand	Hon A Mackenzie.....	Stating complaint and claims.
765	373	April 4	R Jones.....	W H Stephenson	Desiring him to collect all books, plans, etc., from the dismissed engineers.
766	373	" 7	L G Bell.....	S Fleming.....	Respecting changes in connection with Mr. Schreiber's appointment.
767	373	July 14	W H Stephenson	R Jones.....	Enclosing inventories of plant, etc.
768	374	Oct 12	J S Fry.....	S Fleming.....	Referring to certain conversations held with him.
769	375	" 30	S Fleming.....	J S Fry.....	Replying to above.



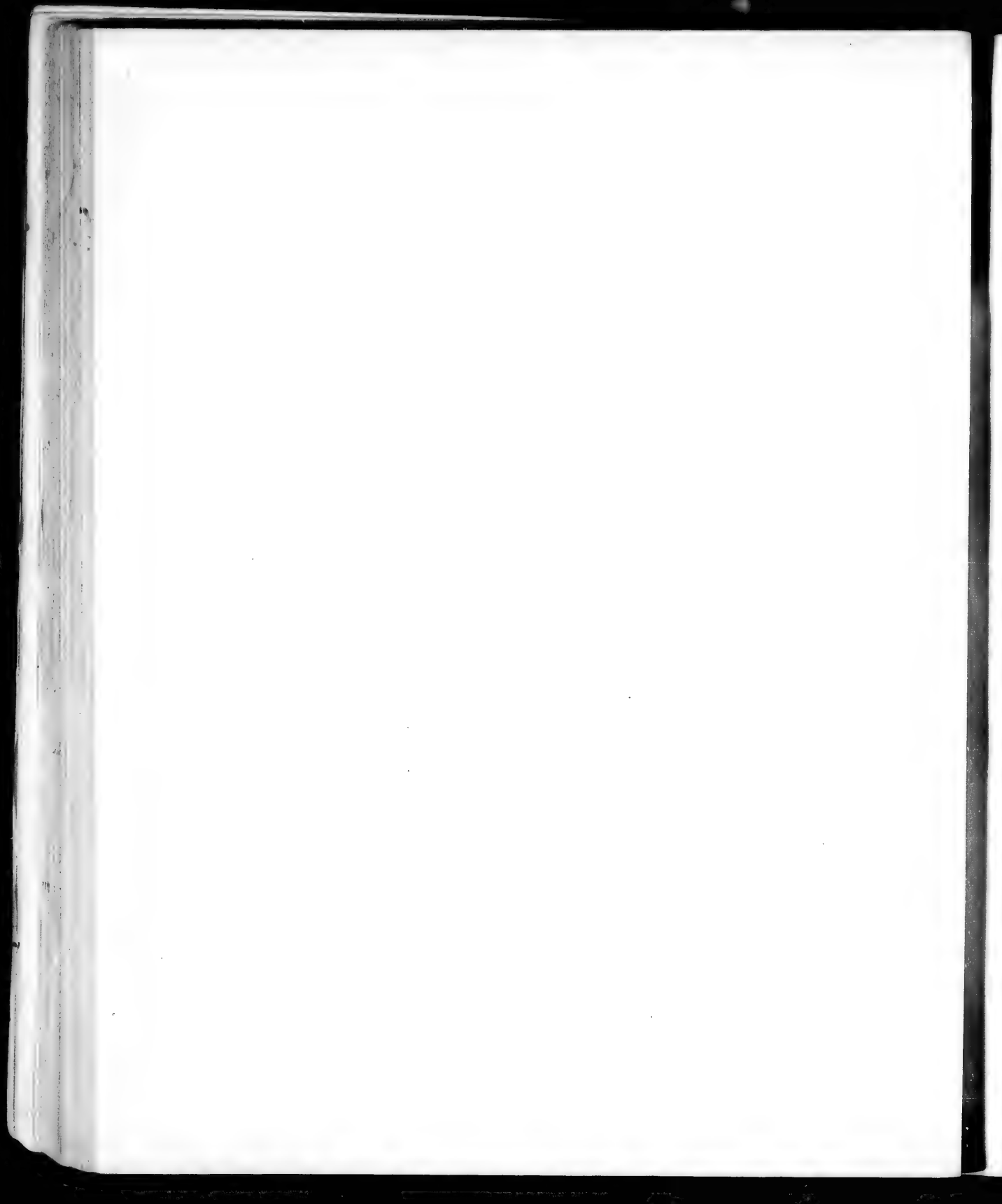
ADDENDA.

346a	171a	1871 May 31	M Smith	P A Peterson.....	Contractors complaining of estimates. Give them no just cause.
346b	171a	" 31	"	C Odell	Respecting abutments of Elmtree Bridge, have as little stepping as possible, as it is more costly to contractor; also, to be as liberal as he "safely can."
368a	179a	June 20	"	P A Peterson.....	Enclosing information as to dimen- sions of bridges.
368b	179a	July 1	"	J B Bertrand.....	As to inferior work in fencing.
368c	179a	" 1	"	C Odell.....	Respecting appointment of Jamieson as Inspector of Masonry.
368d	179b	" 1	"	P A Peterson.....	Respecting appointment of Jamieson as Inspector of Masonry.
368e	179b	" 6	"	"	Desiring him to have matters ready for inspection of Chief Engineer.
368f	179b	" 6	"	C Odell	Desiring him to have matters ready for inspection of Chief Engineer.



INDEX TO APPENDICES.

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“ D.— do do do	“	15
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“ H.—All Works executed up to 31st January, 1871.....	“	9
I.— do do do	“	15
J.—Cost of Works.....	“	9
K.— do	“	15
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“ S.—Receipts for advances.....	“	9 and 15



CORRESPONDENCE.

(1)

BATHURST, 5th January, 1869.

MARCUS SMITH, Esq.,
Dalhousie :

DEAR SIR,—Yours of 4th inst. received, and contents noted. A waterway six feet wide and three feet deep will pass all the water in the brook at flood time.

The headway of 12 feet by '0 or 12 feet will also suit admirably.

Thanking you for your kind wishes,

I am yours most truly,

10

(Signed)

JOHN FERGUSON,
J. F., Jr.

OFFICE OF THE ENGINEER-IN-CHIEF,

HALIFAX, 9th August, 1869.

(2)

MARCUS SMITH, Esq.,
Dalhousie :

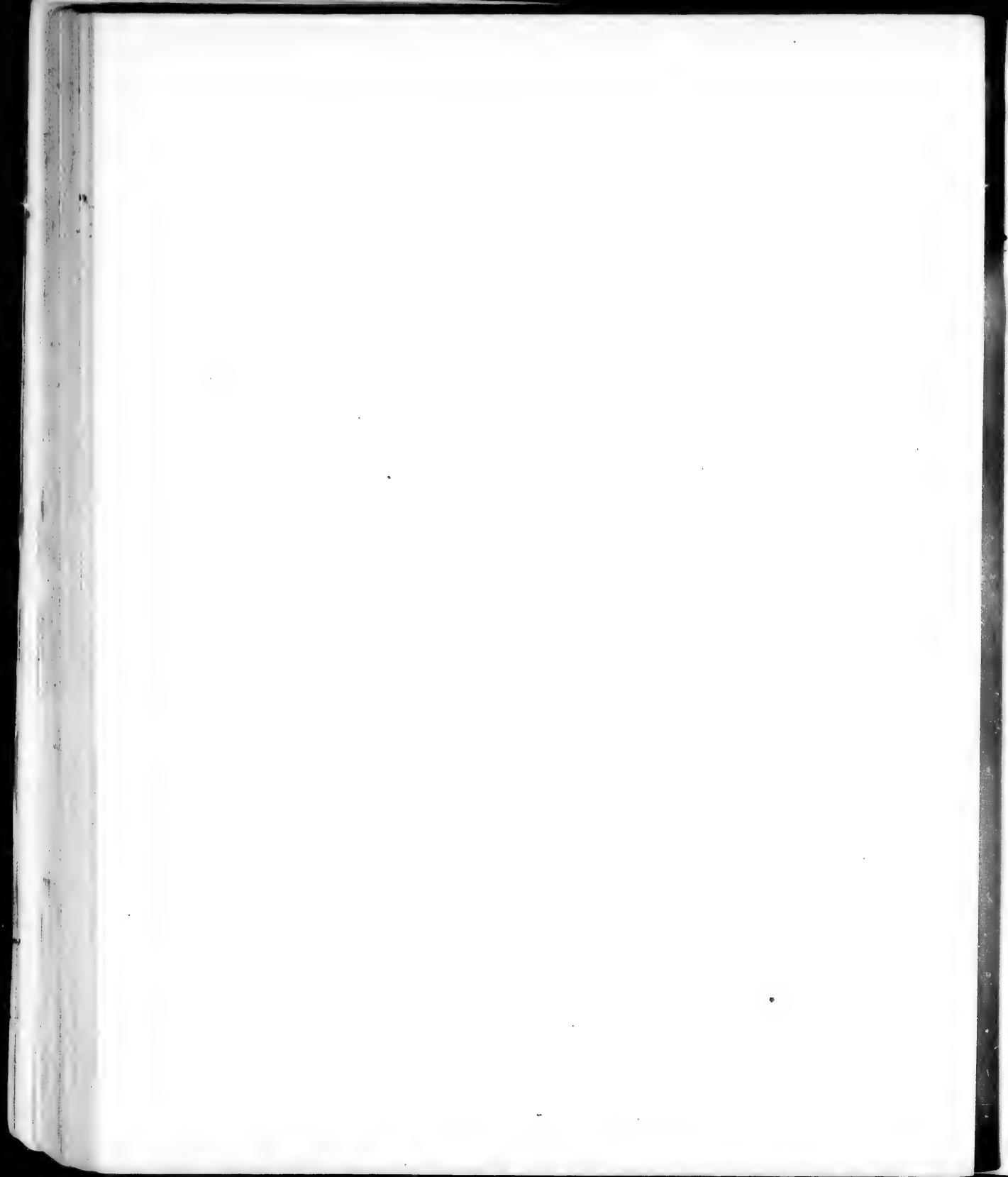
I telegraphed you some days ago that the Commissioners had advertised for additional tenders, and that the plans, quantities and other information relating to a 20 mile section immediately east of Contract No. 6 would be required at the various offices by 18th Sept. It is clear that they should leave this place by the Carlotta on the 7th, and in order to give me time to have the returns of quantities, &c., printed, they should, if possible, be here from the 1st to the 3rd of the month.

20

I hope you will be able to mail them in time for this.

I enclose forms for schemes No 1, for excavation, No. 2, for structures. The intention with No. 1 is to arrange the cuttings and embankments in such groups as they would naturally come in practice, so that whenever borrowing or spoiling is resorted to, the quantity would appear in the proper place. One cutting may exactly make up an embankment, or it may with a little borrowing do so. In this event a balance should be struck representing in equal quantities in columns A. and B., and also in C. and D., the latter two showing the proportions of earth and rock. In some cases you will have to include several cuttings and several embankments in a group before striking a balance. I need scarcely have explained 30 this so particularly, but it is important to have all the returns uniform, and there will not be time for explanations or changes after they come in. You will understand that the great object is to show to contractors as exactly as possible what quantity of work is to be done.

You will see that I have left under the heading of embankments a column for percentage to be added to net quantities. This will be nil when the embankments are wholly rock, but in other material you will have to exercise your own judgment; in cases where the material might run to slopes of 2 to 1 or more, a very considerable addition will be necessary, but there will be very few of such cases.



In form No. 2, for structure, every structure for the passage of water should be entered consecutively, beginning at the end of the contract nearest Quebec. The information
 40 should be as full and accurate as possible; the sites of structures should be carefully examined and *plans* made when necessary, besides the quantities for which columns are provided; every other kind of work or expenditure thought necessary should be alluded to either specially or in the column for remarks. With regard to the size of structures take care that none *shall turn out too small*, and on the score of economy be equally careful to avoid the opposite extreme. I intend having four or five additional general plans lithographed; three of them will be similar to those in printed instructions No. 4 (culverts for side hill ground), and the others will be abutments and piers for Howe truss bridges.

In making out an abstract of quantities as before, put in grubbing distinct from clearing, and, if you can do so, prepare a schedule of road crossings, public and private, to accom-
 50 pany it.

I should like to see you again before the 18th, but it will be difficult for me getting away from here so long.

Yours very truly,

(Signed) SANDFORD FLEMING.

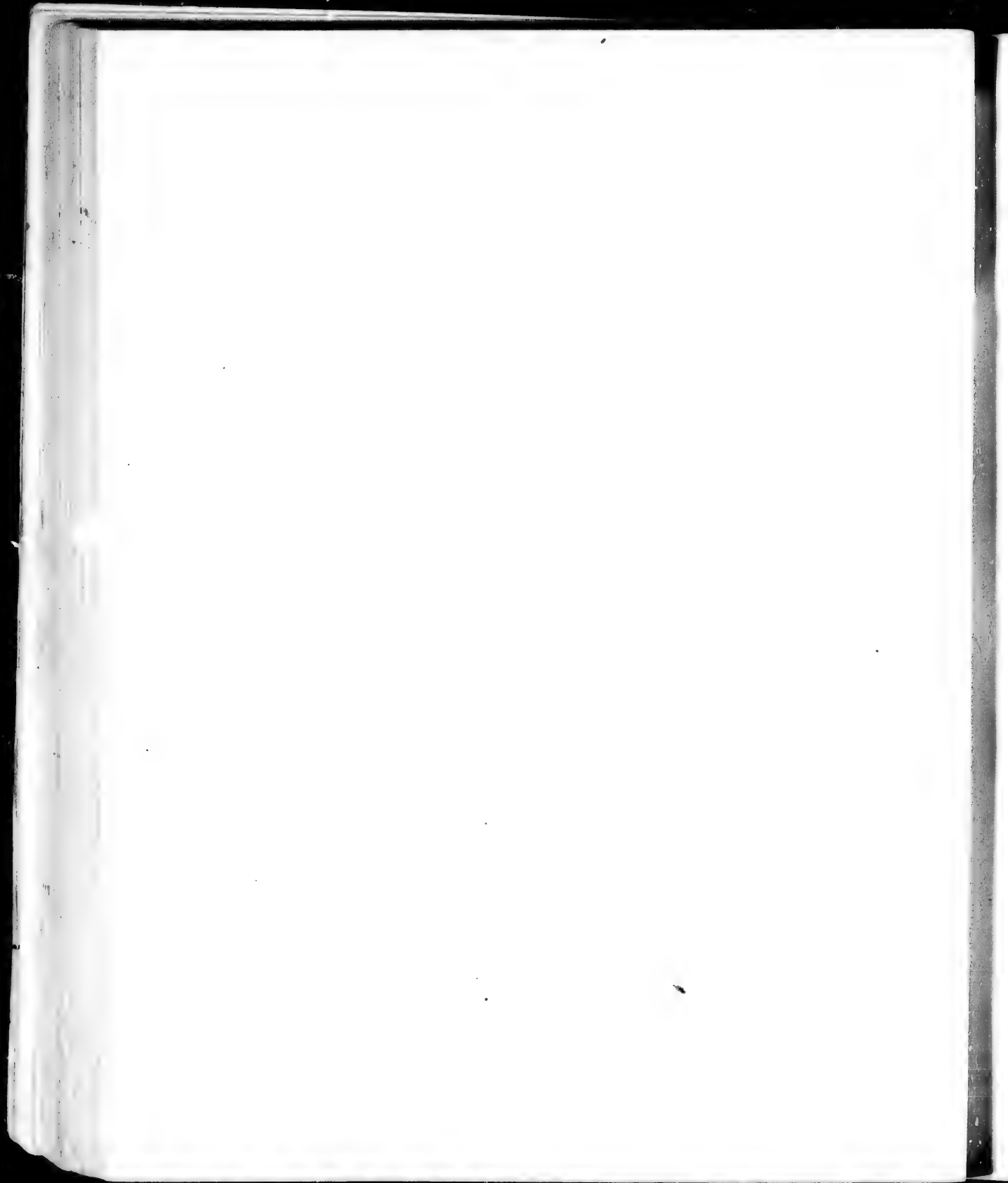
(8)

SANDFORD FLEMING, Esq.

DALHOUSIE, 30th Aug., 1869.

DEAR SIR,—On Saturday (28th inst.) I mailed to your address, Halifax, the quantities of the various kinds of work required to be done on Contract No. 9, except the level crossings, which were not then ready. This day I have mailed two tracings of the plan and
 60 seven tracings of the profile, and also the number of, and quantities in, the level crossings. All these are got out as nearly as possible in accordance with instructions in your letter of the 9th instant. You will perceive that, in the formation of the embankments, we have to borrow a large quantity throughout in addition to what is obtained from the cuttings. The grade line is kept well up for two reasons:—First, a great portion of this section is rock, which is broken on the surface and more easily worked than lower down, and therefore it is better to borrow from surface than to cut down to balance. Secondly, the line of snow drift will generally be obliquely across the line of railway, and the more of the line there is above the surface the better. There is a considerable distance where I have estimated to
 70 borrow from rock to make rock embankments. The reason of this is there is really no earth near to borrow from, but if the contractors prefer to employ a locomotive to bring earth from a distance they may do so, and the quantity will be 10 per cent. more in addition to the haulage. I have added generally 10 per cent. to earth embankments, and taken rock embankments net at slopes of $1\frac{1}{2}$ to 1. This allows $\frac{1}{2}$ slope for contingencies.

FARM CROSSINGS.—I have just got the list of boundary lines from the surveyors, a copy of which I send you with notes. It is almost impossible to say how many crossings will be wanted, but I have left out a long distance where the farms are not cultivated within half a mile or more of the railway, where crossings will evidently be wanted. I have, wherever possible, made one crossing (20 ft. wide) do for two farms, and some of these



may be still further reduced by making one crossing do for a group of three or four narrow
80 arms, but this can only be done by negotiation. The list I send is, I think, as low as it is
safe to estimate. I have sent details of all quantities, so that you may roughly check them.
I have directed the operations, and checked as much as I could find time to do.

Yours most truly,

M. SMITH.

P. S.—I think you should insist that where borrowing is required for embankments it
should, except in very long hauls, be done by widening cuttings in accordance with Sec. 17
of specifications, and contractors' attention might be called to this by a note. They could
generally do this cheaper than by borrowing from the side, where the soil is so shallow and
grubbing required. I find that Mr. Jobin, who takes out the cuttings as wide as we require
90 without a demur, gets on far faster than Grant and Elliott, who are always scheming to
avoid widening cuttings.

M. S.

(4)

3rd Sept., 1869.

(By Telegraph from Halifax.)

To M. SMITH.

Is there is any chance of tunnel at station eleven (11), contract nine (9), instead of
twenty (20) feet arch.

(Signed),

S. FLEMING.

100 (5)

28th Sept., 1860.

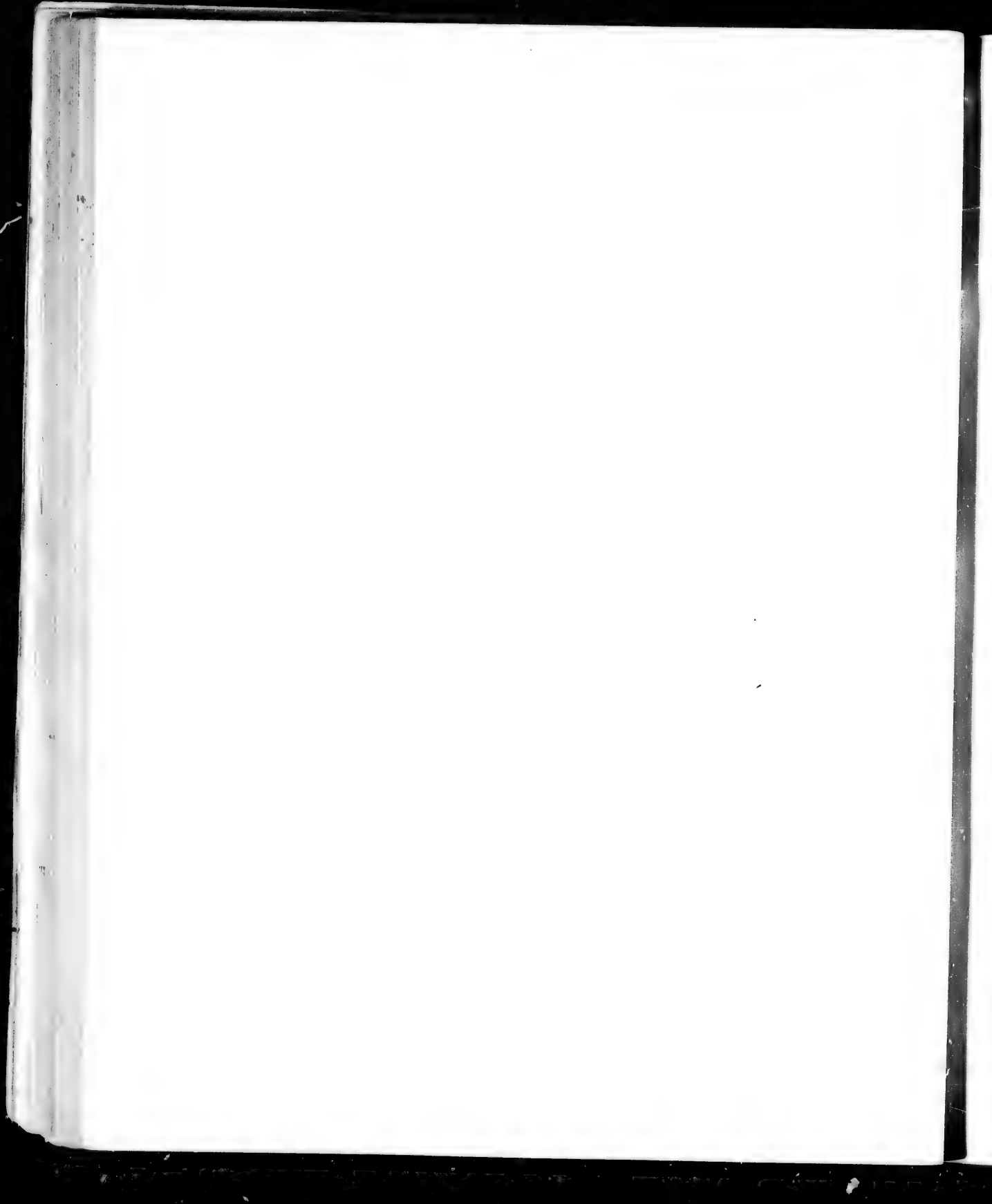
(By Telegraph from Ottawa.)

To MARCUS SMITH, C.E.

Printer's error, 1st page; Quantities, Section No. 9:—Earth excavation, called forty-
two thousand two hundred yards, instead of four hundred and twenty-two thousand. Correct
figures first page.

(Signed)

C. S. ROSS.



(6)

OFFICE OF THE ENGINEER-IN-CHIEF,

HALIFAX, Sept. 30th, 1869.

110 MARCUS SMITH, Esq.,

Dalhousie.

MY DEAR SIR,—I shall, in all probability, be asked by the Commissioners to submit an estimate of the cost of the new contracts, to guide them when the tenders are being considered. In this I want to have the benefit of your local knowledge and experience.

I enclose two sheets which, after careful consideration, I will thank you to money out, so as to form what may be viewed as *maximum* and *minimum* estimates. The former should be the lowest rate at which, in your opinion, the work may be done for, under favorable circumstances, such as present wages, good working seasons, &c.; while the latter should, in view of all the circumstances, embrace fair and reasonable allowances for all contingencies; it should be a safe but not extravagant estimate.

Will you be so good as mail these estimates to Ottawa, so that I may receive them before the 16th October.

Yours truly,

(Signed)

SANDFORD FLEMING.

(7)

DALHOUSIE, 11th October, 1869.

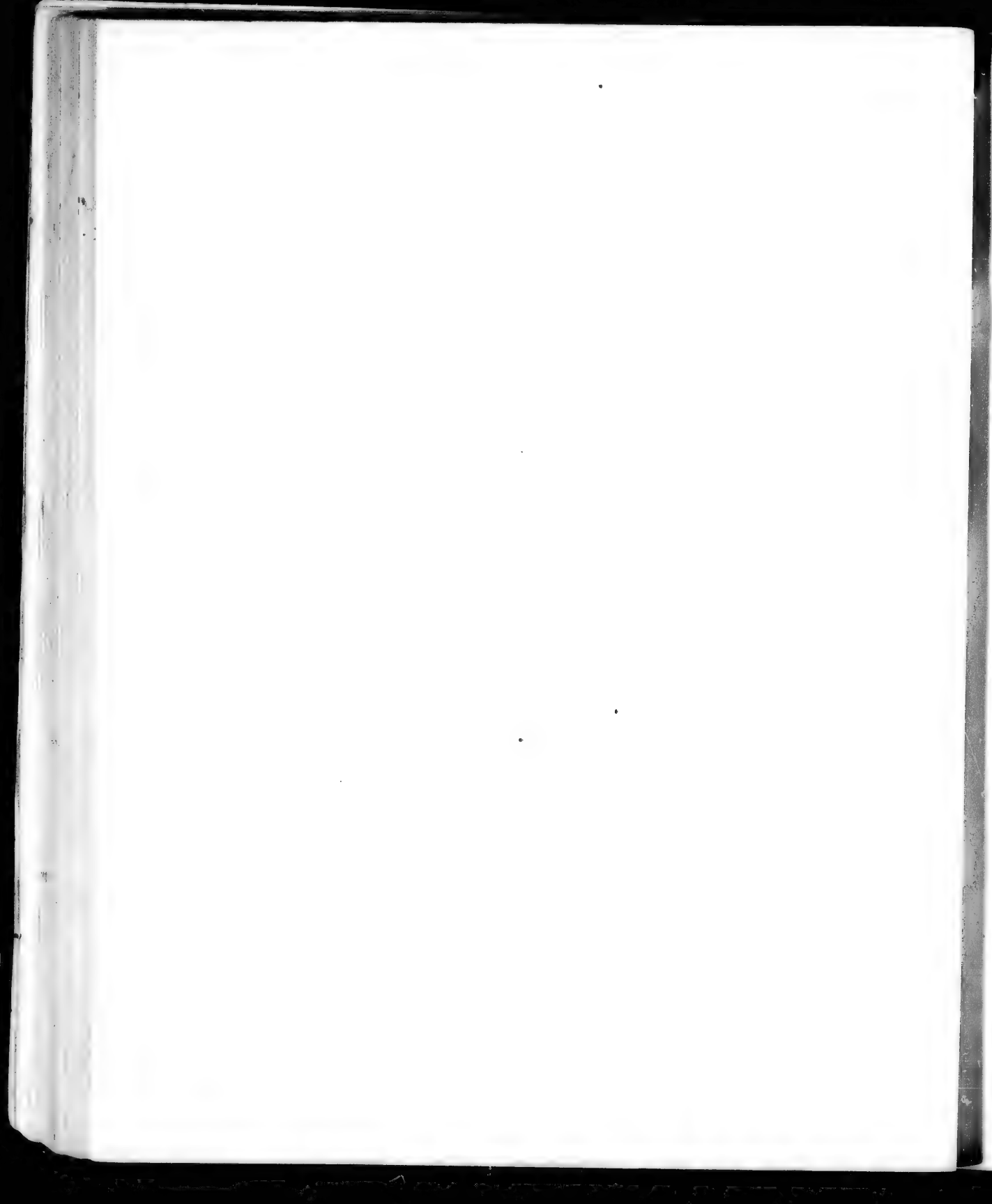
SANDFORD FLEMING, Esq., Chief Engineer,

Ottawa:

DEAR SIR,—Agreeably to the instructions contained in your letter of the 30th Sept., I herewith send you a maximum and minimum estimate of the cost of construction of section 130 No. 9. A good deal of this is conjecture, as nothing has been done in this neighbourhood yet in a manner to throw any light on the cost if works properly managed, but taking what we have already got as a sample of contractors and the certain rise in the price of labour next year, there is no probability of the work being done for less than the maximum estimate. The minimum estimate will approximate nearly what it might be possible to do the work for under the most favourable circumstances and by a skilled contractor. I have examined the bridges where the discrepancy in the quantities occurs between those sent you and those in the bill of works. The latter have been taken from the centre line, while our quantities were taken from the cross sections and approximate the closest. The first-class masonry in the bill of works is full 400 c. yds. short of the true quantity, but other items are full enough to 140 make up for this.

Yours truly,

M. SMITH.



(8)

OTTAWA, 22nd October, 1869.

The Commissioners appointed to construct the Intercolonial Railway, now beg to report upon the Tenders received for

SECTION No. 9.

Thirty-five tenders have been received for this section, of which the following are the lowest.

150	No. 184.....	Gray & Lome.....	\$220,632 or 10,506 per mile.
	" 92.....	Sheems & Co.....	297,810 " 14,157 "
	" 127.....	J. S. Grant.....	303,770 " 14,465 "
	" 122.....	Peters & Co.....	311,787 " 14,847 "
	" 155.....	Ralph Jones.....	314,297 " 14,966 "
	" 95.....	C. Touchette.....	315,000 " 15,000 "
	" 80.....	Berlinguet & Co.....	329,438 " 15,211 "
	" 39.....	Sutton & Angus.....	338,698 " 16,129 "
	" 137.....	A. Elliott & Co.....	346,240 " 16,487 "
	" 76.....	J. B. Bertrand & Co.....	354,897 " 16,899 "

In reference to Nos. 184, 92, 127, 122, 95, the Commissioners are not satisfied as to
160 the skill, experience and resources, of the parties tendering, and, therefore, cannot recommend the acceptance of any of these tenders.

No. 155 is withdrawn, the party having made an error in his calculations.

No. 80, after a careful examination, is not found to be a satisfactory tender, and as, on a former occasion, Messrs. Berlinguet & Co., failed to complete a contract which had been awarded to them, owing to their proposed securities declining to execute the necessary bonds, the Commissioners cannot recommend the acceptance of this tender.

Nos. 39 and 137, are offered by parties who have already secured contracts, and the Commissioners are of opinion that it would not be advisable to place more work in their hands.

170 No. 76, is a satisfactory tender, good securities for its due fulfilment, and the Commissioners therefore recommend that the tender of Messrs. J. B. Bertrand & Co., of Quebec, for the sum of (\$354,897.) or at the rate of \$16,899.85 per mile, be accepted, they being satisfied as to the skill, experience and resources of Messrs. Bertrand & Co.

(9)

OTTAWA, 25th October, 1869.

MESSRS. J. B. BERTRAND & CO.,
Quebec.

GENTLEMEN,—As desired, I beg to hand you, herewith, profile of Section No. 9, Intercolonial Railway.

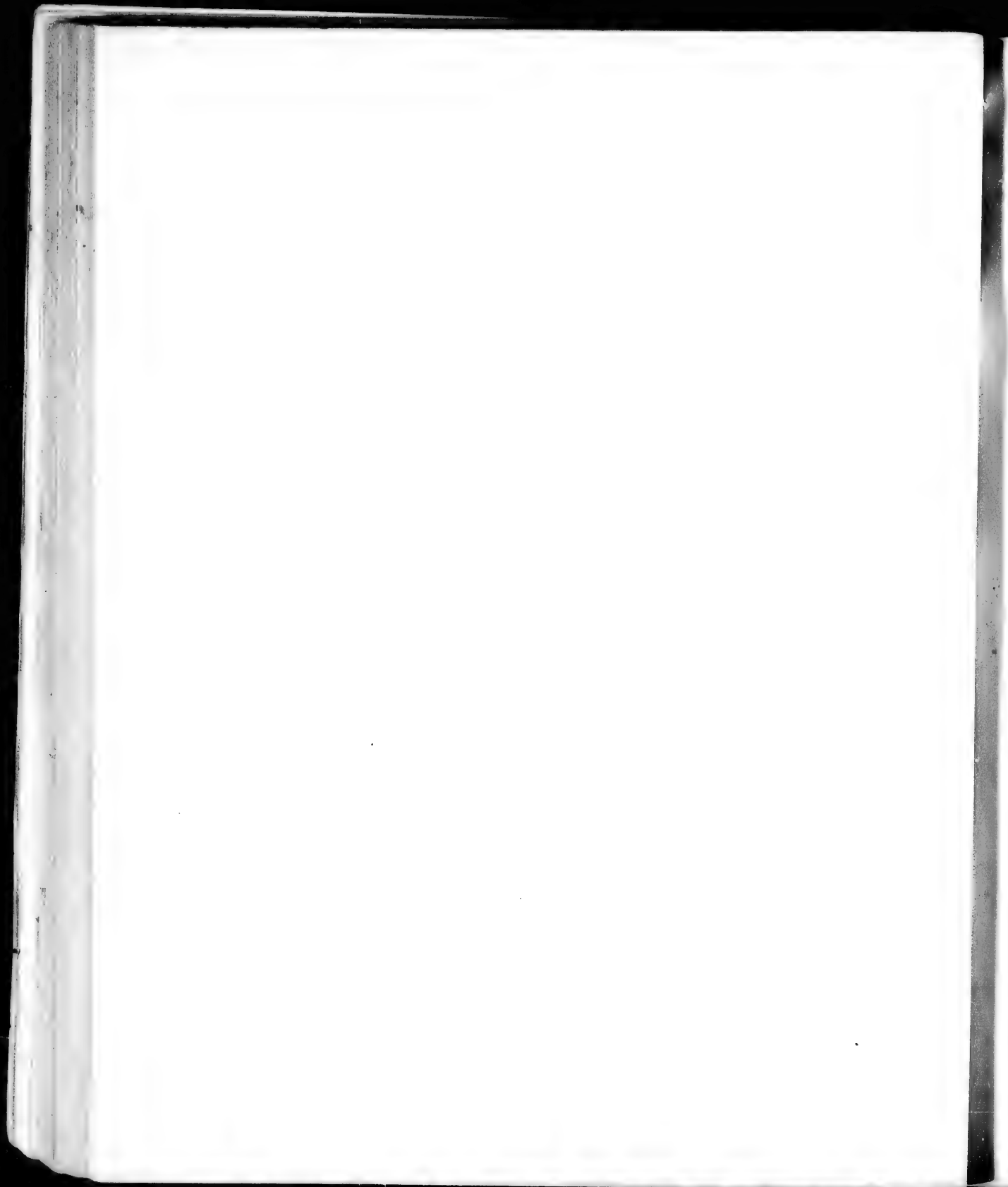
I am, Gentlemen.

Your obt. servt.,

(Signed) C. S. ROSS, Sec.

I also add printed statement of quantities.

180



(10)
To F. BOLGER, Esq.,
Bathurst :

DALHOUSIE, 15th Nov., 1869.

Send Fowler and Bliss to Chalmers' at once with two tape lines, and come here yourself as soon as finished.

(Signed)

M. SMITH.

(11)
190 Z. FOWLER, Esq.,

DALHOUSIE, 16th Nov., 1869.

DEAR SIR,—The contractor of Section No. 9 wants to commence clearing, and I have not yet received a list of the engineers appointed. I wish you, therefore, with the assistance of W. Bliss, to commence at once to set out the half widths for clearing. This will be 66 feet each side of the centre line (total width, 132 feet), where you will drive a stake, and mark C. on the side next the centre line. Where there are cross sections set out, you will only have to measure 6 feet beyond the last stake; but where there are no cross sections you will measure from the centre line, and you should have a cross staff to get right angles from the line to insure the distance being true. If you have not one, get one made at W. Hervey's (near W. Chalmers). You will see that the boundaries of the farms have been
200 marked by a stake on each side of the line. The half widths should be set off wherever these occur, and at each station besides, but you need not cut any trees down to get exact right angles. Get them as near as you can without.

Yours truly,

M. SMITH.

(12)
To MARCUS SMITH, Esq., C.E.

BERESFORD, 20th November, 1869.

SIR,—I beg most respectfully to request of you to inform me if the different parties owning land on the line of Railway can prevent me, or persons employed by me, from working on the line, and if I can prevent them from cutting and taking away cedar rails, and
210 other timber. I would also desire to know if I may expect to be protected by the Commissioners and the Government, or whether I will have to defend myself against the aggressors.

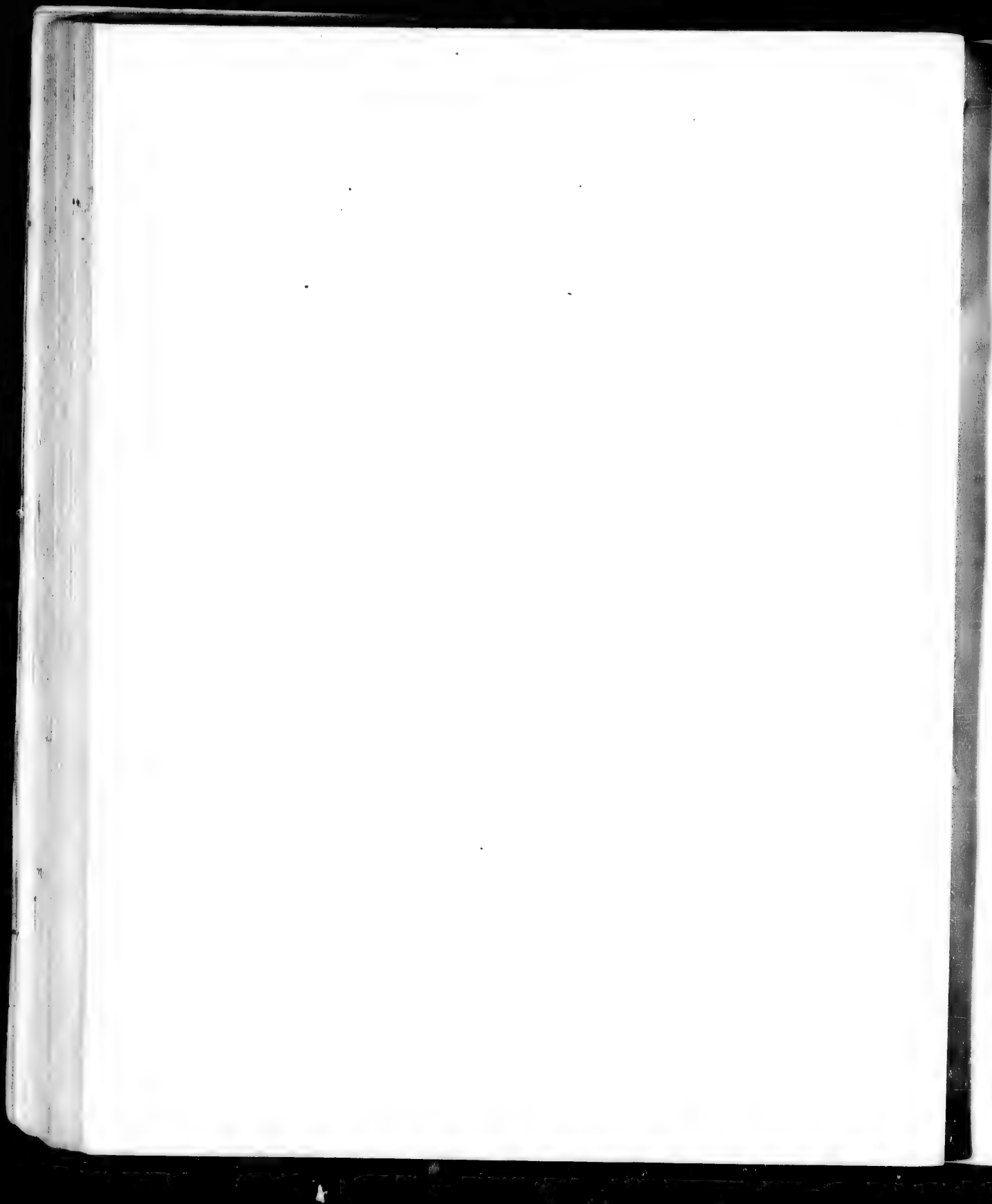
Hoping you may be pleased to favor me with a reply at your earliest convenience,

I remain,

Your most obedient Servant.

(Signed)

J. B. BERTRAND.



(13)
MARCUS SMITH, Esq.

BERESFORD, 20th November, 1869.

SIR,—I beg leave to inform you that I have already let several contracts for clearing,
220 and also for rock excavating, and intend going on with the work at once.

I would, therefore, respectfully desire you to instruct the engineers for this section to lay out the work for me.

I remain, Sir,

Your most obedient servant,

(Signed)

J. B. BERTRAND.

(14)
J. B. BERTRAND, Esq.

DALHOUSIE, November 23rd.

SIR,—I have just received your letter of the 20th inst., in which you intimate that you intend going on with the works of Section 9 at once, and wish the engineers to lay
230 them out.

I beg to state that I sent out two engineers to stake out the clearing as soon as possible after you called at this office, but it will take a considerable time to lay out the whole. There can, however, be no difficulty, as the width of the clearing will be 132 feet throughout—that is, 66 feet on each side of the stakes which mark the centre line of railway, which is the usual length of a tape-line, so that any of your foremen could set out such parts, if any, as the engineers may not be able to get ready in time.

I have also prepared a table of half-widths of a rock cutting near Ehatree River, and of the adjoining embankment, which has to be formed with the material taken from the cutting.

240 The engineer (to whom I have sent this table), will set these out for you, and mark on the centre stakes the depth of cutting and height of embankment. Any other works you wish to commence you will please to let me know of, and I shall have them set out with as little delay as possible.

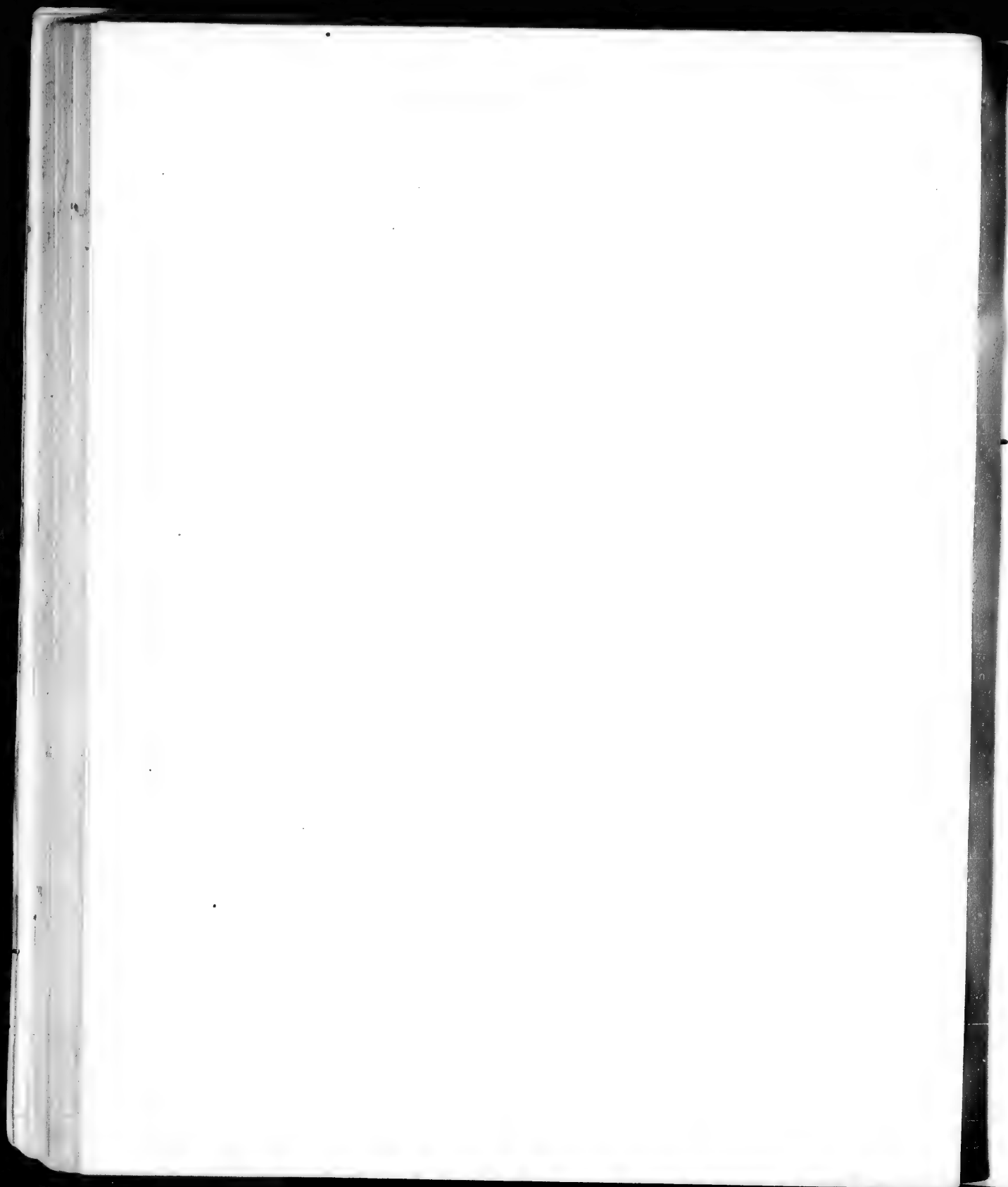
Your obedient servant,

MARCUS SMITH,

District Engineer.

The width of embankment is 18 feet on top, and the least width of cuttings 22 feet at bottom, but as you will have to borrow material to make up your embankments, you will find it best to widen the cuttings to get material, so I would advise you to leave the sides
250 rough at present, and not form the slopes.

M. S.



(15)

DALHOUSIE, 24th November, 1869.

Z. FOWLER, Esq.,

DEAR SIR,—I have just had a letter from Mr. J. B. Bertrand, contractor for Section 9, wishing some clearing and rock cuttings set out. I have replied that you are setting out the clearing as fast as you can, and I herewith send you a table of half-widths and heights of a rock cutting near Elmtree River, which you will please set out at once. You will mark on the centre stakes the depths of cutting and height of embankment (adjoining) and set out the slope stakes according to the distances given in the table. The width of embankment
 260 at top is 9 feet each side of centre line, and the least width of cutting 11 feet each side of centre; but you need not set these out; only give it to the sub-contractor or Mr. Bertrand on a slip of paper. To facilitate setting out the clearing, you may set the half-widths only at every 200 feet on tangents and 100 feet on curves.

Yours truly,

M. SMITH.

P. S.—Mr. Bertrand dates from "Beresford." I can find no such Post Office, so have directed my letter "Belledune." Please tell him so.

 (By Telegraph from Ottawa.)

(16)

30th November, 1869.

270 To MARCUS SMITH, Esq., C. E.

See your letter, ninth November. Keep original profile. Charles Odell appointed to contract nine; McMillan, roadman. If required before spring, employ, temporarily, other assistants on your district on this contract.

(Signed)

SANDFORD FLEMING.

(17)

QUEBEC, 6th December, 1869.

MARCUS SMITH, Esq.,

District Engineer, Intercolonial Railroad.

DEAR SIR,—Would you be kind enough to enclose with the profile of Section No. 9 an English copy of the specification; the only one we have is in French.

280

We remain,

Dear Sir,

Very truly yours,

(Signed)

J. B. BERTRAND & CO.

per E. S.

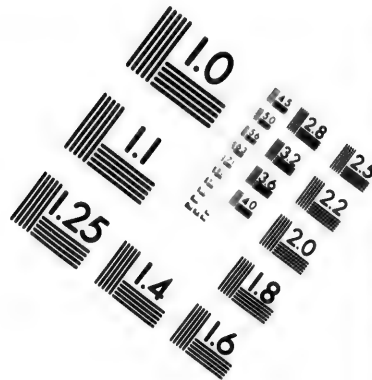
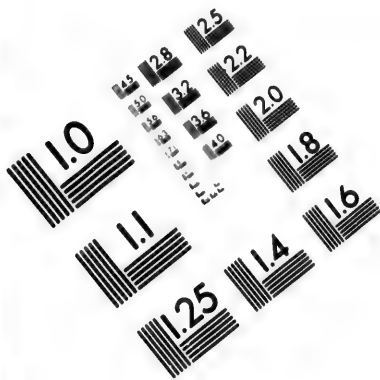
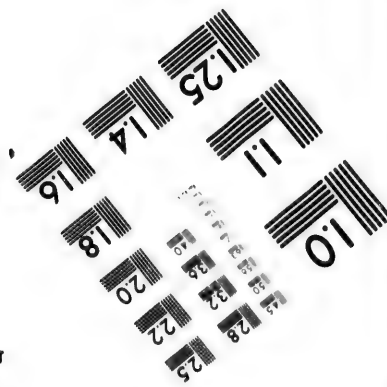
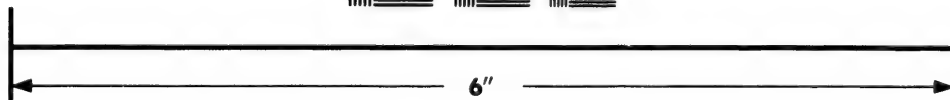
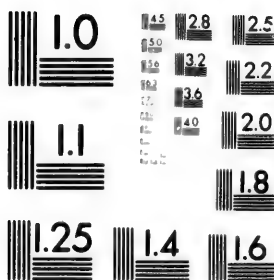


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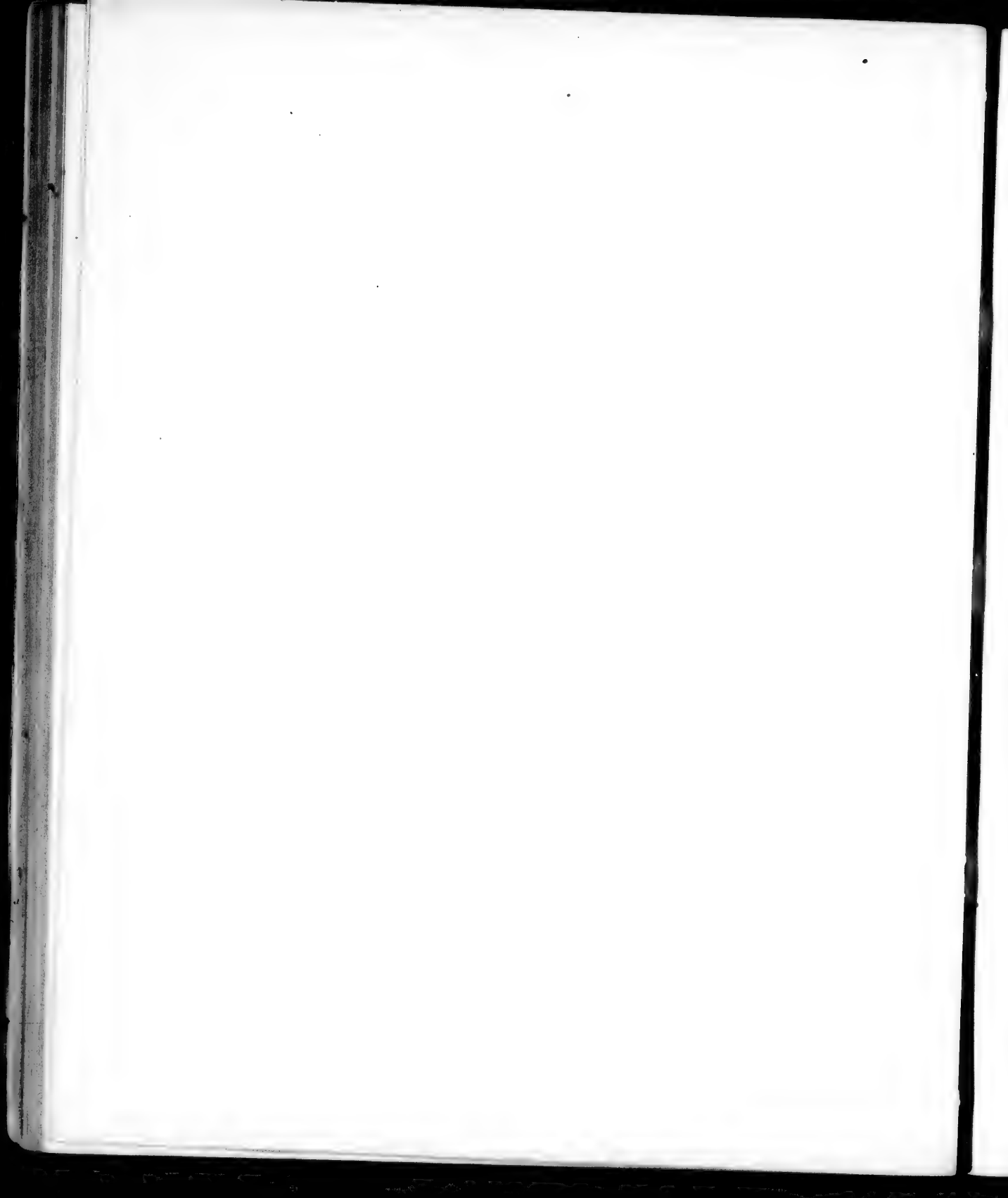


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WEBSTER, N.Y. 14580
(716) 872-4503**

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10



(18)
MARCUS SMITH, Esq.,

QUEBEC, 10th Dec., 1869.

District Engineer, I. R. R. :

DEAR SIR,—We are in receipt of a letter from our agent on No. 9 Section, which informs us that our miners at Elmtree River have received no further instructions about
290 the grading since the starting point.

We should feel exceedingly obliged if you would have it seen to, at your earliest convenience.

We are further informed that our two last letters had not been answered up to the 8th Dec.

Yours very truly,

(Signed) J. B. BERTRAND & Co.,
per E. S.

(19)
MARCUS SMITH, Esq.,

OTTAWA, Dec. 16, 1869.

300 District Engineer, Restigouche District :

MY DEAR SIR,—I am anxious, now that the working season is over, that you should without delay, cause to be prepared for this office properly attested copies of all the information referred to in my general instructions, Nos. 1, 2 and 4.

The information respecting streams is, I think, in your office. Carefully made copies is what I want. The other information asked for should be prepared and attested, by the engineers on contracts. I will thank you to request them to do it without delay.

The following is required :

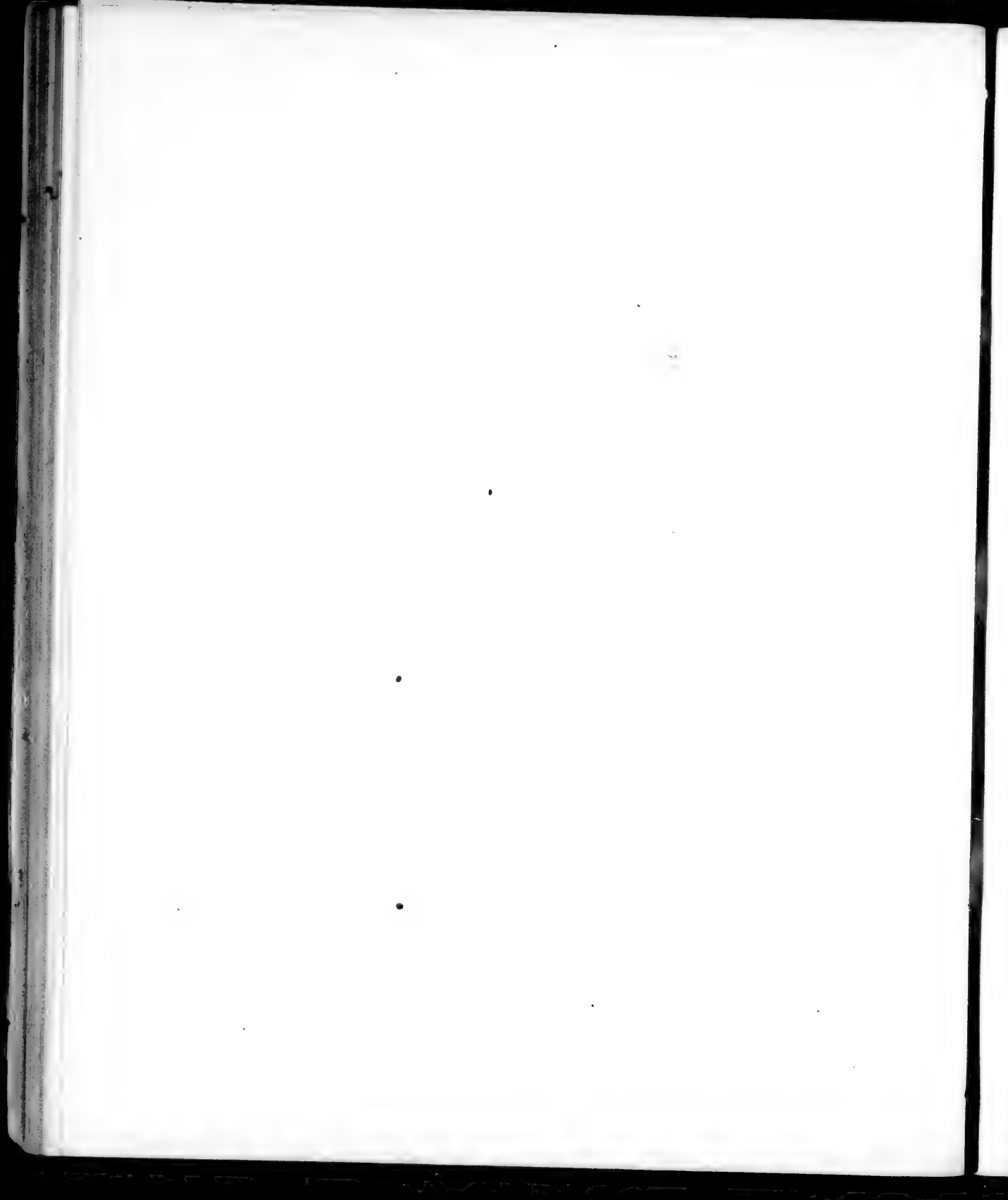
1st. The result of the measurement of streams on each contract as per General Instructions No. 1.

310 2nd. Section books for each contract complete in every respect, and attested, as per General Instructions No. 2.

3rd. Tables of bench works and reference stakes for each contract. See clause 10, General Instructions No. 2. Copies of these tables should be included in each section book transmitted to the head office.

4th. A tracing carefully made of the working profile of each contract. Clause 11 and 12 General Instructions No. 2. This profile should show in different colours the progress made in cuttings and embankments from month to month.

5th. A copy of the working plan of the Railway as located and now under construction on each contract, in order to have all the profiles and plans uniform and
320 portable size. I should like them to be on tracing cloth 18 inches broad, the same as the length of a page of ordinary foolscap.



6th. Drawings to a uniform scale of all structures commenced on each contract, with the following particulars written thereon, and attested by the Engineer in charge, as well as by his Assistant on the particular Sub-division.

1. No. of contract.
2. No. of station on Centre line.
3. Date when masonry was commenced.
4. Height of formation level above datum at centre line.
5. Height of line of paving above datum at centre line.
- 330 6. Height (above datum) of foundation at centre line, and at other points.
7. Inclination of paving and angle of skew if any.
8. Every dimension of structure, so far built, figured thereon, and every other particular in accordance with clauses 82, 83 and 84. General instructions No. 4.

To insure uniformity, these drawings of structures should be carefully made on cloth, fool-cap size (18 x 16), or, in case of large drawings, afterwards folded to that size.

The enclosed tracing shows a convenient mode of indicating the progress of work done on the profiles. When the excavation or embankment is not formed full to slope lines, the portion executed is simply colored. Where the southerly slopes (see clauses 1 and 2, general instructions) are fully completed, the portion done is indicated by diagonal red lines descending 340 from left to right, thus :—

(Sketch.)

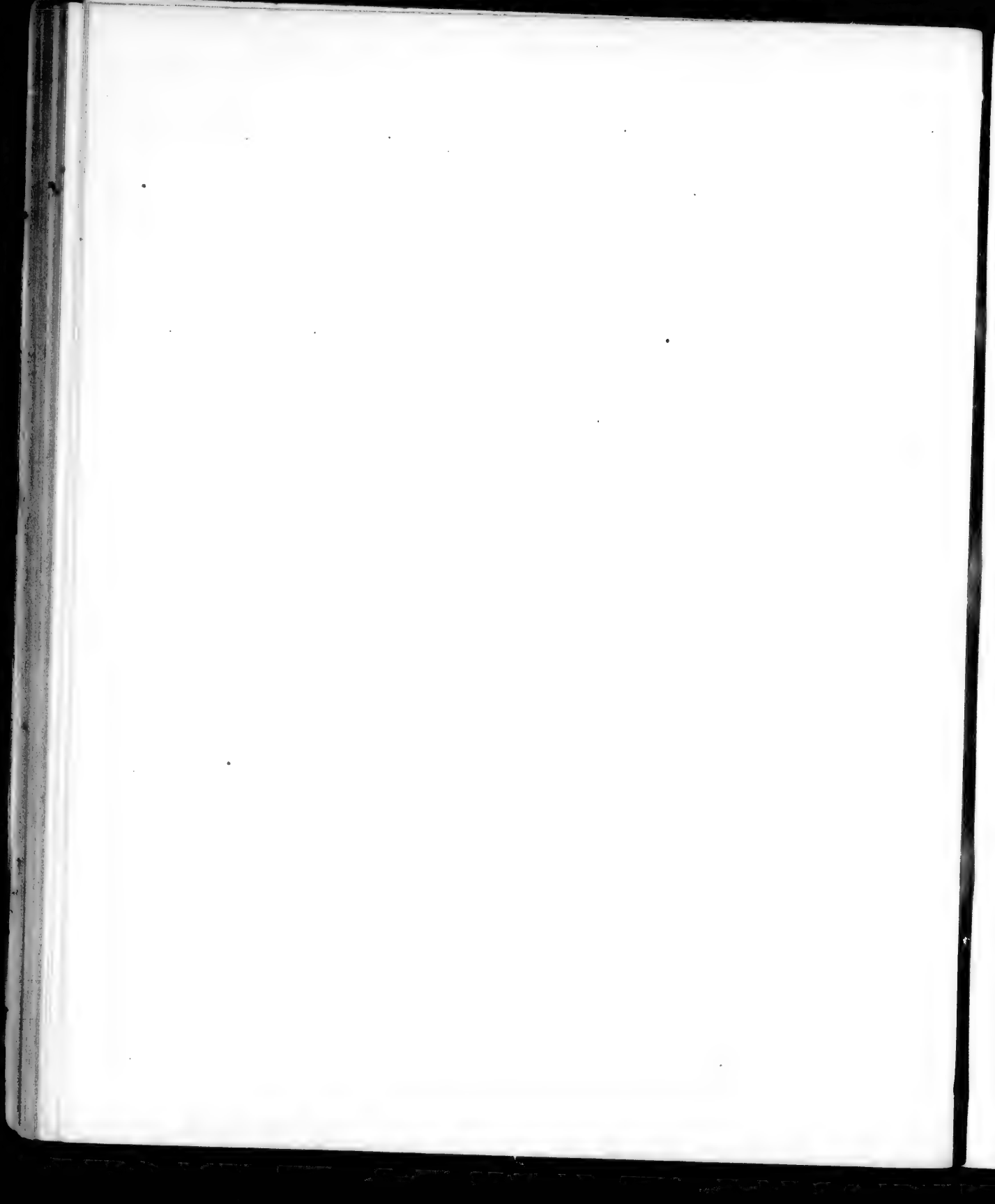
and when the northerly slope is done, by red lines in the opposite direction, thus :—

(Sketch.)

It is of some importance to carry out a uniformity of system throughout the whole line in preparing the plan and profile as well as everything else.

It appears to me, therefore, that the earthwork executed during each month might be shown by the same colors on every contract profile. With that view the following colors are selected; they form good contrasts, and I shall be glad to see them employed throughout your District.

350	Blue	for work done in January and July.
	Yellow	" " " February and August.
	Red	" " " March and September.
	Green	" " " April and October.
	Purple	" " " May and November.
	Orange	" " " June and December.



Drawings and profiles now asked for, are intended to be a complete exhibit of all the work done in each month up to the end of the present year.

In addition to the above, I have to request that you will furnish as soon as possible detail schedules from cross section of excavations and embankments of each contract within
 360 the limits of your district. These schedules should be in the form of those printed for the last tenders called for, and should be in as much detail as may seem necessary. At the same time, you will be good enough to prepare and forward schedules according to the printed forms of all structures deemed necessary, but before the final adoption of the latter I shall probably require some further consultation with you.

The above refers to all contracts now actually under construction, as well as to any others proposed, so far as practicable.

Yours very truly,

(Signed)

SANDFORD FLEMING

Chief Engineer.

370

(Sketch)

TABLE OF DISTINCTIVE COLORS.

January and July	☐	Blue.
February and August.....	☐	Yellow.
March and September.....	☐	Red.
April and October.....	☐	Green.
May and November	☐	Purple.
June and December.....	☐	Orange.
North slopes, (complete)	(Sketch)	
South slopes, (complete)	(Sketch)	

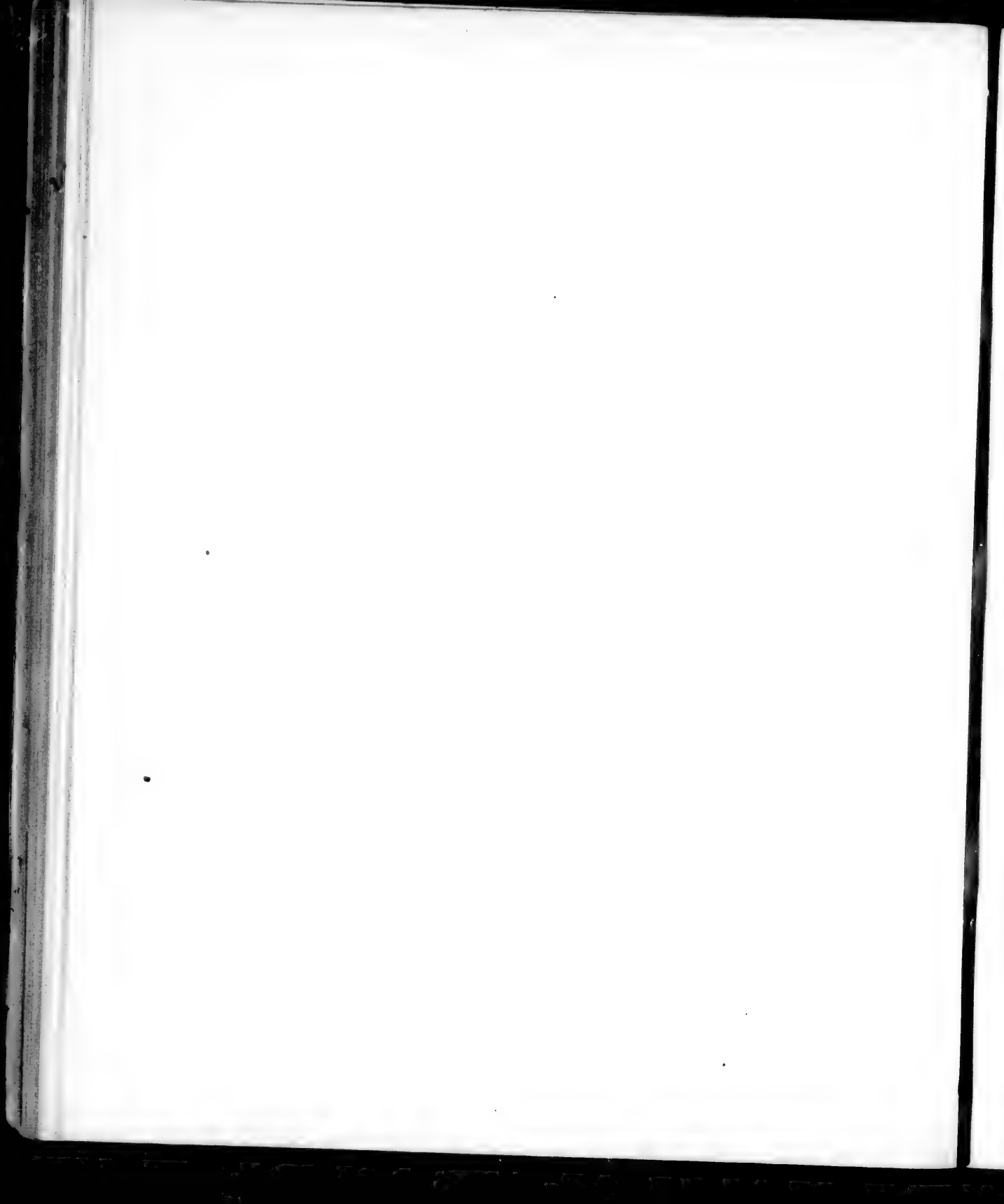
380

DALHOUSIE, 17th Dec., 1869.

MESSRS. J. B. BERTRAND & Co.

SIRS,—I am in receipt of your letter of the 10th instant. and beg to inform you that the whole of the rock cutting, which M. Bertrand informed me he was going to commence was staked out within a few days after he called at this office. Since then I have sent two more assistants to help to stake out the works, and they inform me that they have now completed the staking out of the whole of the timbered lands for clearing.

I sent the profile and specification (in English) to your address (Quebec) last week.



Referring to your letter of the 20th ult. I have to inform you that the land owners cannot prevent you, or parties employed by you, working on the line, and I am not informed \$90 that they have attempted to do so.

I don't know what agreements are made about the timber on the lands required for the railway, but I have communicated the contents of your letter referring to this to the valuers who are now paying the claims of the land owners.

In the meantime, you should instruct your agent to protest formally against the timber being taken away, and if persisted in, to take down the names of the parties, and keep an account of the quantity of timber they have removed until the matter is settled.

I have no letters from your agent unanswered.

I am, Sirs,

Your obedt. servant,

400

MARCUS SMITH,

District Engineer.

(21)

QUEBEC, 28th December, 1869.

29½ Richardson St.,

St. Roch.

MARCUS SMITH, Esq.,

Chief Engineer,

Restigouche District, Intercolonial Railway.

DEAR SIR,—We beg to acknowledge receipt of a parcel, per post, containing an English copy of general specifications and a copy of the profile of Section No. 9; and also of your letter 410 of the 17th inst., answering questions previously made.

We should feel very much obliged, if you would send us a certificate of the work done up to the 1st Dec. 1869 on Section No. 9 of your district; and also the proper form to draw whatever you will allow us on the work in progress.

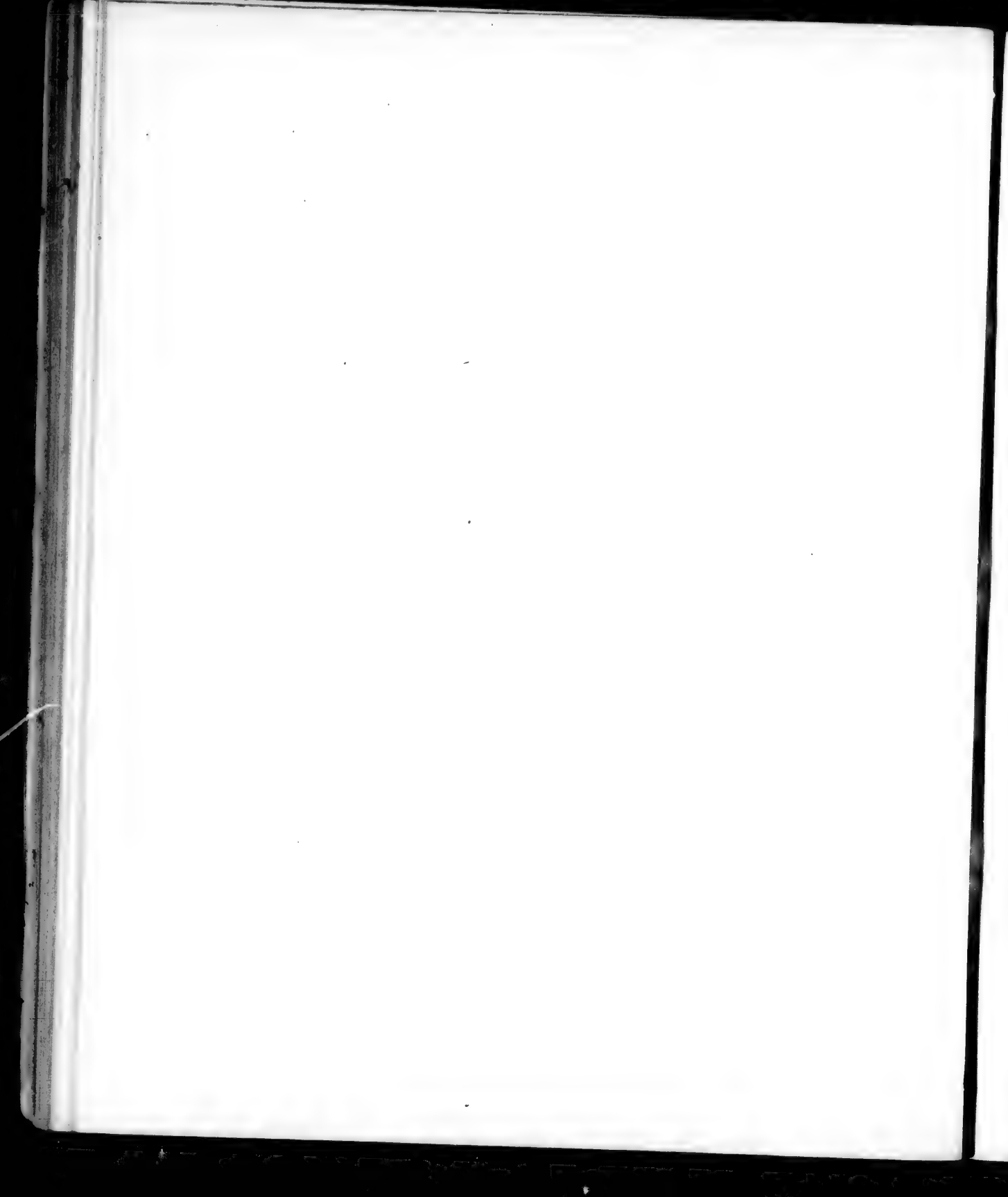
We remain, Dear Sir,

Your most obedient servants,

(Signed)

J. B. BERTRAND, & C^{rs}.

per E. T. S.



(22)

DALHOUSIE, 4th Jan., 1870.

J. B. BERTRAND & Co.,

420

Sirs,—I beg to acknowledge the receipt of your letter of the 28th ult., and to inform you that I have sent the certificate of work done on Section No. 9, up to the 31st December last, to the Chief Engineer at Ottawa, and you should apply for a copy of the same, or a warrant for the amount, to C. S. Ross, Esquire, Secretary to the Commissioners I. C. Railway, Ottawa.

I am, Sirs,

Your obedient Servant,

MARCUS SMITH,

District Engineer.

(28)

QUEBEC, 10th Jan., 1870.

430 C. S. Ross, Esq.,

Secretary to the Commissioners, Intercolonial Railway,

Ottawa.

Sir,—We are informed by Marcus Smith, Esq., Chief Engineer of Restigouche District, that a certificate of the work done up to the 31st Dec., 1869, on Section No. 9, has been sent to the Chief Engineer at Ottawa; and from that Report, a certain amount stands to our credit.

We should feel very thankful if you would furnish us with a copy of the Engineer's Report, and also a warrant to enable us to draw whatever has been allotted to us.

We remain, dear Sir,

440

Your most obedient servants,

(Signed)

J. B. BERTRAND & CO.,

Per E. & S.

(24)

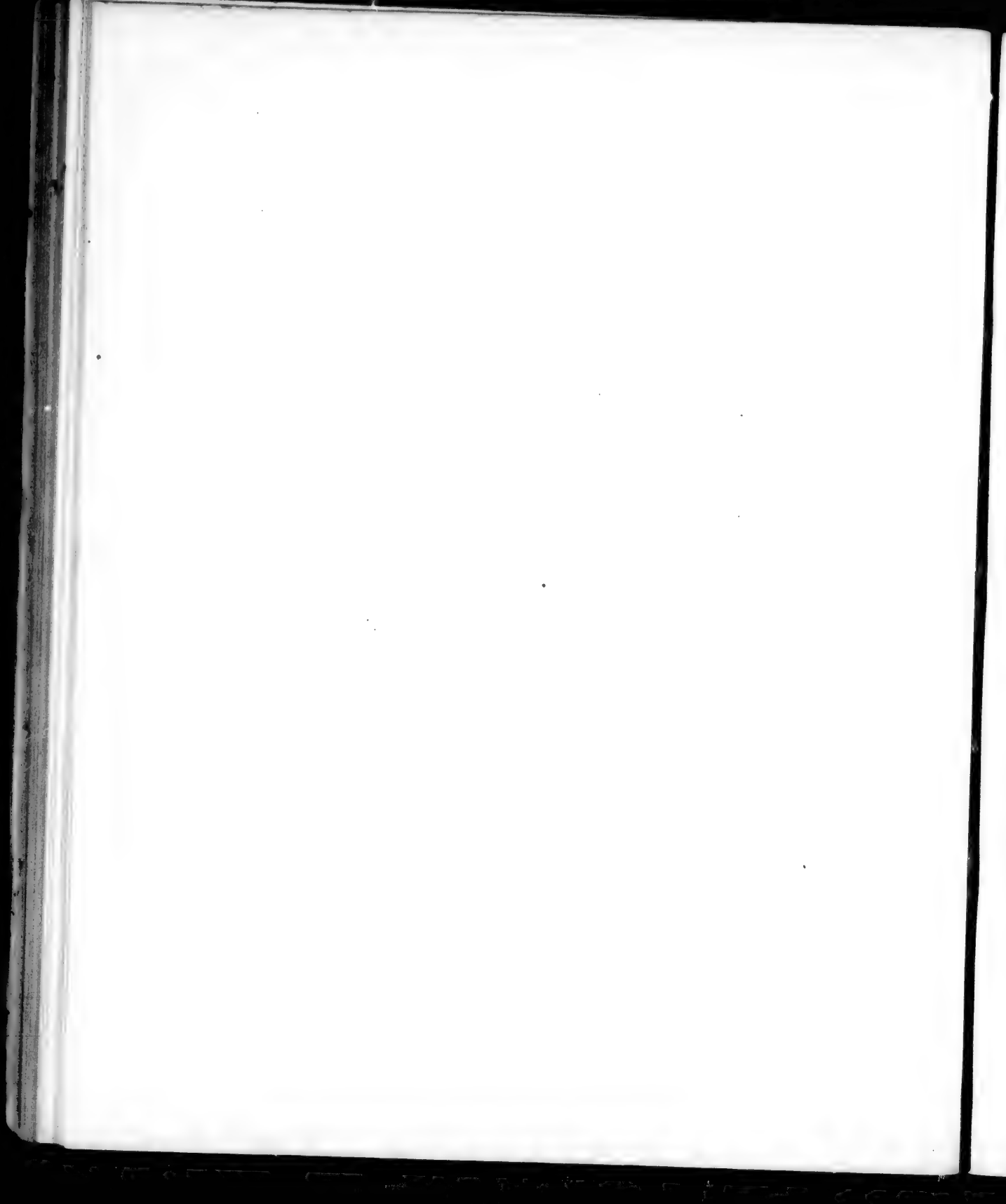
Jan. 18th, 1870.

(By Telegraph from Ottawa.)

To M. SMITH.

Make contractor drawings of cattle guards; solid crib all round; inside measure sixteen by eight feet; three feet deep under formation; stringers sixteen by fourteen inches, each twenty-four feet long. Tracing of gate sending by Tremaine.

S. FLEMING.



450 (25)

QUEBEC, 18th Jan., 1870.

C. S. ROSS, Esq.,

Sec. I. C. R.

DEAR SIR,—We beg to acknowledge receipt of your favor of the 12th inst., enclosing form of power of attorney, which we have had executed by Messrs. Bertrand in our favor, and substituted A. C. Kelty, Manager of the Bank of British North America in Ottawa, who will receive any amount due, as soon as warrants issue, and sign receipt for same. The necessary documents have been transmitted to him.

We are, dear Sir,

Your obedient servants,

460

(Signed)

GLOVER & FRY.

(26)

19th January, 1870.

(By Telegraph from Ottawa.)

To M. SMITH :

First report contract time received, beginning January third. What would be the aggregate force engaged up to that date?

S. FLEMING.

(27)

DALHOUSIE, 20th Jan., 1870.

To S. FLEMING,

Ottawa : Contract No. nine.

470

Aggregate labour to 31st Dec., seventeen hundred days approximately.

(Signed)

M. SMITH.

(28)

OTTAWA, 20th Jan., 1870.

Messrs. BERTRAND,

29½ Rue Richardson,

St. Roch, Quebec.

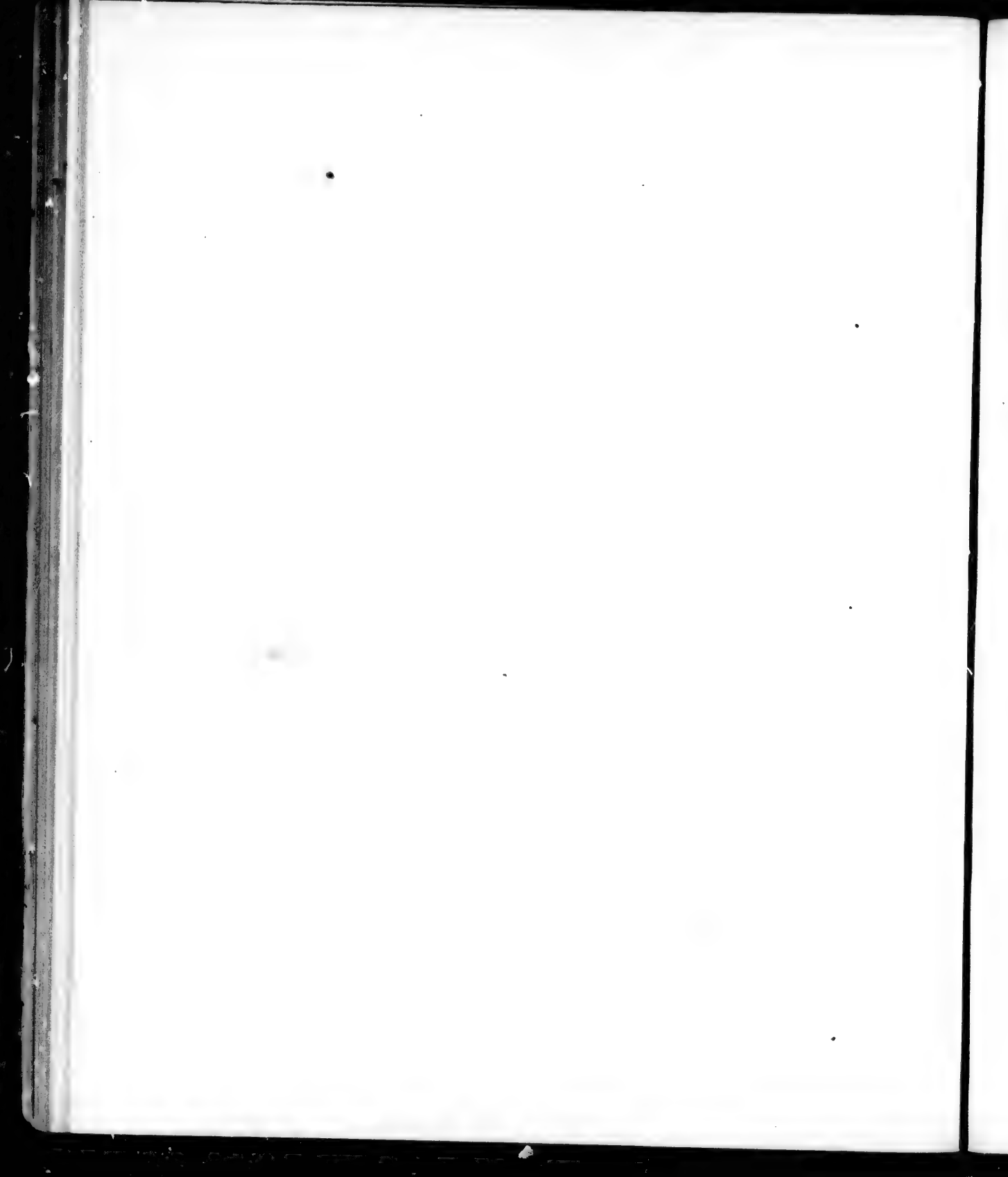
GENTLEMEN,—Your letter of the 10th inst was duly received. To-day I am advised by Messrs. Glover & Fry that they have sent Power of Attorney to Mr. Kelty, Bank B. N. America, and I have applied for a warrant in your favor for \$1,756.

Being Dec. estimate .. \$1,951.

480

Less 195

————\$1,756



The Chief Engineer has not, as yet, given us the *quantities* of work done, but merely the figures \$1,951 in certificate. When I have the quantities I shall send you copy.

I am, Gentlemen,

Your obt. svt.,

(Signed)

C. S. ROSS, Sec.

(29)

26th January, 1870.

(By Telegraph from Ottawa.)

To M. SMITH:

490 Letter nineteenth received, cattle guards consist only of rectangle A, B, C, D, the four sides of which solid square timber, the stringers to extend over each side about eight feet into the ballast.

S. FLEMING.

(80)

January 31st, 1870.

To SANDFORD FLEMING,

Ottawa:

What inclination is required in approaches to farm crossings where present surface of ground is nearly level, but railway embankment several feet high.

M. SMITH.

500 (31)

February 1st, 1870.

To SANDFORD FLEMING,

Ottawa:

Have estimated farm crossings generally one in ten inclination; will that do? In many places natural surface is much steeper.

M. SMITH.

(82)

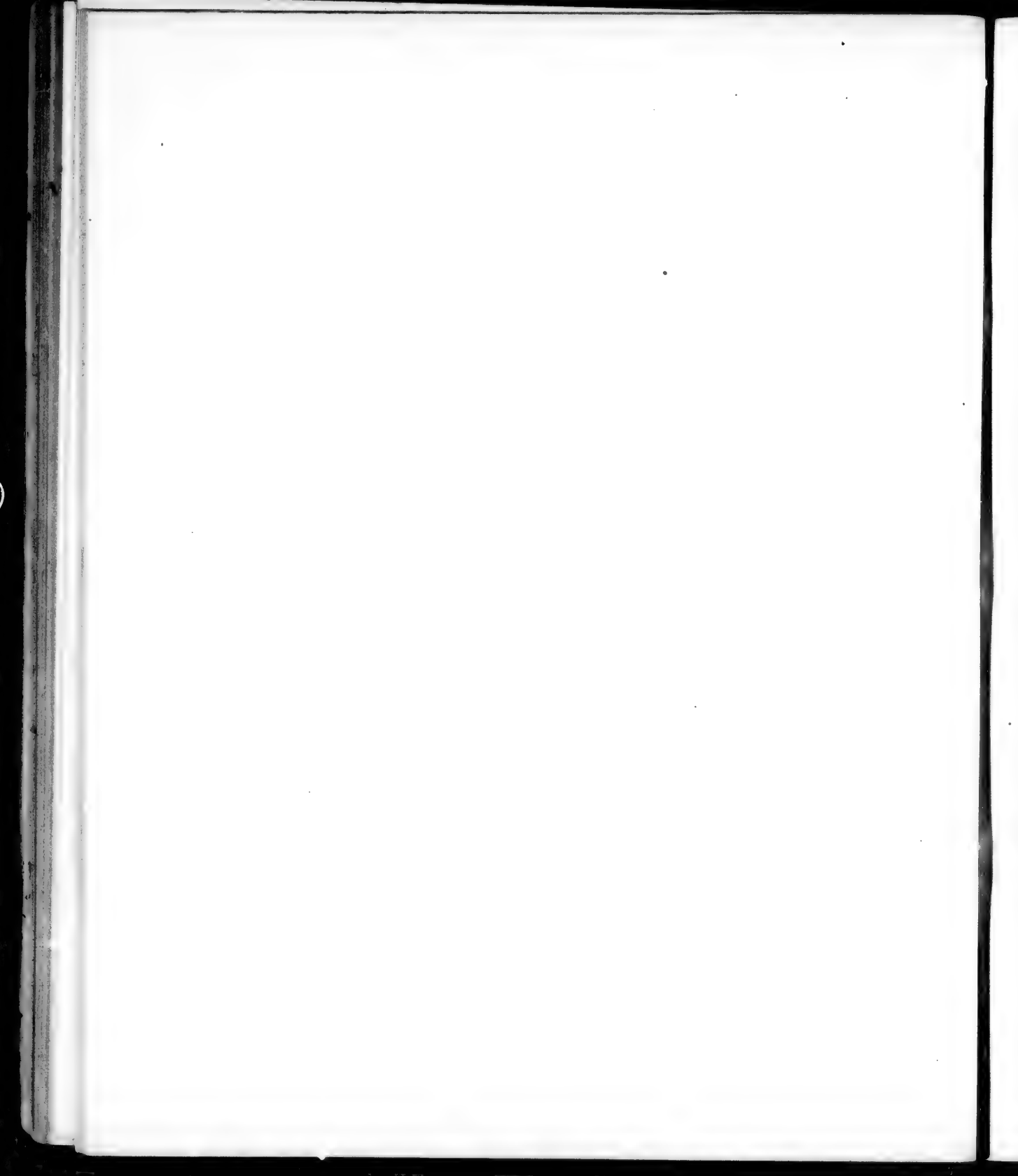
1st February, 1870.

(By Telegraph from Ottawa.)

To M. SMITH,

510 Farm crossings, say, one in twelve; important roads one in twenty; inclinations beginning nine feet from centre line at rail level, say, two feet above formation.

S. FLEMING.



(88)

10th February, 1870.

S. FLEMING, Esq.

520 MY DEAR SIR,—Herewith I send you the quantities on Contract No. 15. They have been thoroughly revised, and I believe them to be correct; but I thought it best to send them on at once, and give you time to check them. The masonry I worked out myself, and think I can vouch for its accuracy. The quantities are net, and there should be a small percentage added, as we did not put the foundations very low; culverts especially. The top of the invert was put, as a rule, 1 foot below natural bed of stream. At Peter's River, you will perceive I have put a 20 feet culvert. I tried first a 40 feet bridge, with Howe truss; but, owing to the height, the quantity was very large. I then tried an arch of 20 feet, and, with very liberal abutments, I found there would be full 500 cubic yards less than the bridge, and as it is on a rock foundation, there would be no danger of the weight of embankment injuring the arch, if it were carefully backed up according to your specification; but wherever there is a doubt about any structure, I have not written it on the profile, so that you can determine them after I come up. I leave here Monday morning.

Yours most truly,

M. SMITH.

(84)

MADISCO, Section 9, February 28th, 1870.

530 Mr. ODELL, C. E.

SIR,—As Mr. Marcus Smith told us to construct the fencing of the line under a plan different from that mentioned in specification, we would respectfully request of you to furnish us with the exact plan and proportions.

We have now a quantity of rails, on the line, of 15 feet long and fully four inches at small end.

Also please inform us, at your earliest possible convenience, if the stone at Grand Anse and Chatham is acceptable for first-class masonry.

We remain,

Sir,

Your most obt. servt.,

540

(Signed)

J. B. BERTRAND,

per J. M. McG.

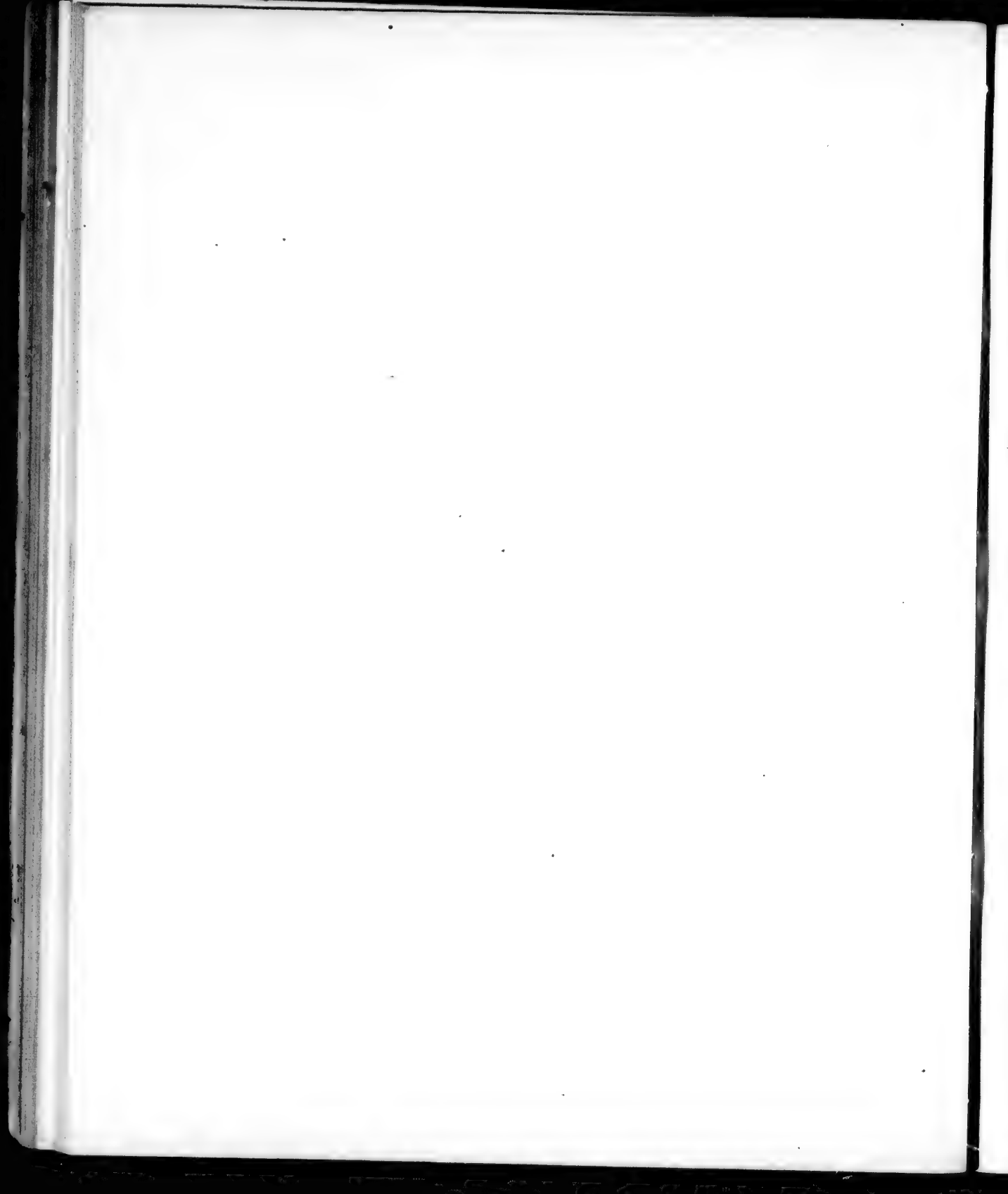
(85)

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

DALHOUSIE, 3rd March, 1870.

MESSRS J. B. BERTRAND, & Co.,

GENTLEMEN,—In reply to your letter of the 28th ultimo, I have to state that Mr. Smith has left no plan or specification of the fence you require; but so soon as I can procure one it shall be furnished you.



The quality of stone at Grand Anse or Chatham quarries, is suitable for first class 550 masonry, provided it can be got of proper dimensions, according to the specification.

I remain, gentlemen,

Yours truly,

(Signed)

CHAS. ODELL.

(86)

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

DALHOUSIE, 4th March, 1870.

MARCUS SMITH, Esq.,

DEAR SIR,—I herewith enclose the estimate of work done on Section 9, for the month of February past.

I received a letter from Mr. Bertrand, contractor, (who has arrived here) asking for a 560 plan and specification of the fencing that you mentioned to him as differing from the general specification; will you please inform me on the subject. They are now delivering rails 15 feet in length, and 4 inches at the small end.

We are all hard at work at cross sections and quantities, and things generally are progressing favorably.

Hoping soon to hear the final decision as to the route from Adams', on the Metapedia, down stream.

I remain,

Yours truly,

(Signed)

CHAS. ODELL.

570 (87)

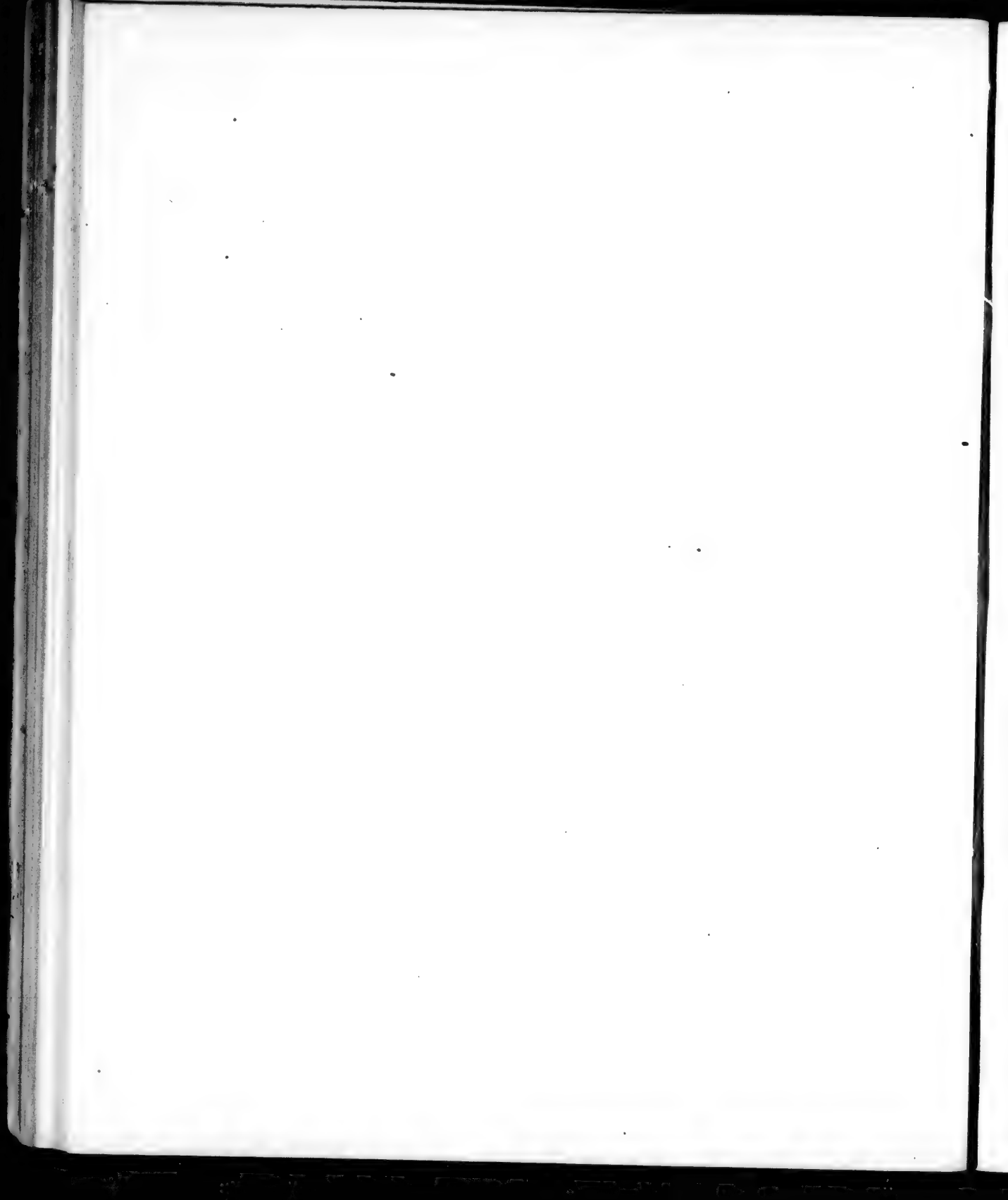
OTTAWA, 5th March, 1870.

J. B BERTRAND & Co., Section No. 9,

Quebec.

GENTLEMEN,—As you doubtless have heard, much difficulty and inconvenience have arisen from the embarrassment of the contractors on Sections No. 8, 4 and 7, and the unimportant progress made on the works upon these Sections, and Nos. 5 and 6. The trouble to laborers, sub-contractors, and other individuals connected with these Sections, has been such, that the Commissioners have been obliged to annul the contracts. And in order to avoid similar complications in the future, so far as possible, the Commissioners have passed the following resolution, of which I am instructed to transmit a copy to contractors. The 580 resolution is:—

"Ordered,—That the secretary be instructed to notify the respective contractors, "that the chief Engineer has been directed to report, from month to month, the progress



"and character of the works being prosecuted; and whether the laborers upon the works
 "are being regularly and promptly paid. And should it appear to the Commissioners, either
 "that the works are not being proceeded with in a manner to secure the completion within
 "the time limited by the contract, or that the laborers are being left unpaid, the Commis-
 "sioners will forthwith annul the contract."

I am Gentlemen,

Your servant,

590

(Signed)

C. S. ROSS,
 Secretary.

(88)

MADISCO, SEC. 9, March 5th, 1870.

To INTERCOLONIAL RAILWAY COMMISSIONERS, OTTAWA.

GENTLEMEN,—We beg most respectfully to request of you to give us, at your earliest convenience, a copy of quantities of work done on this section.

Also the payments due since 31st December to 28th February.

Hoping you may be pleased to favor our request,

We remain, Gentlemen,

Yours respectfully,

600

(Signed)

J. B. BERTRAND & Co.

(89)

MADISCO, SECTION 9, I. R., March 9th, 1870.

CHARLES ODELL, Esq., C. E.,

Dalhousie.

DEAR SIR,—I would respectfully desire you to furnish me with the plan of bridge at public road, at station 780 on the profile.

Also the plan of culvert between stations 780 and 790; and also the plan of bridge and culvert at public road, station 800 to 810; with the necessary instructions.

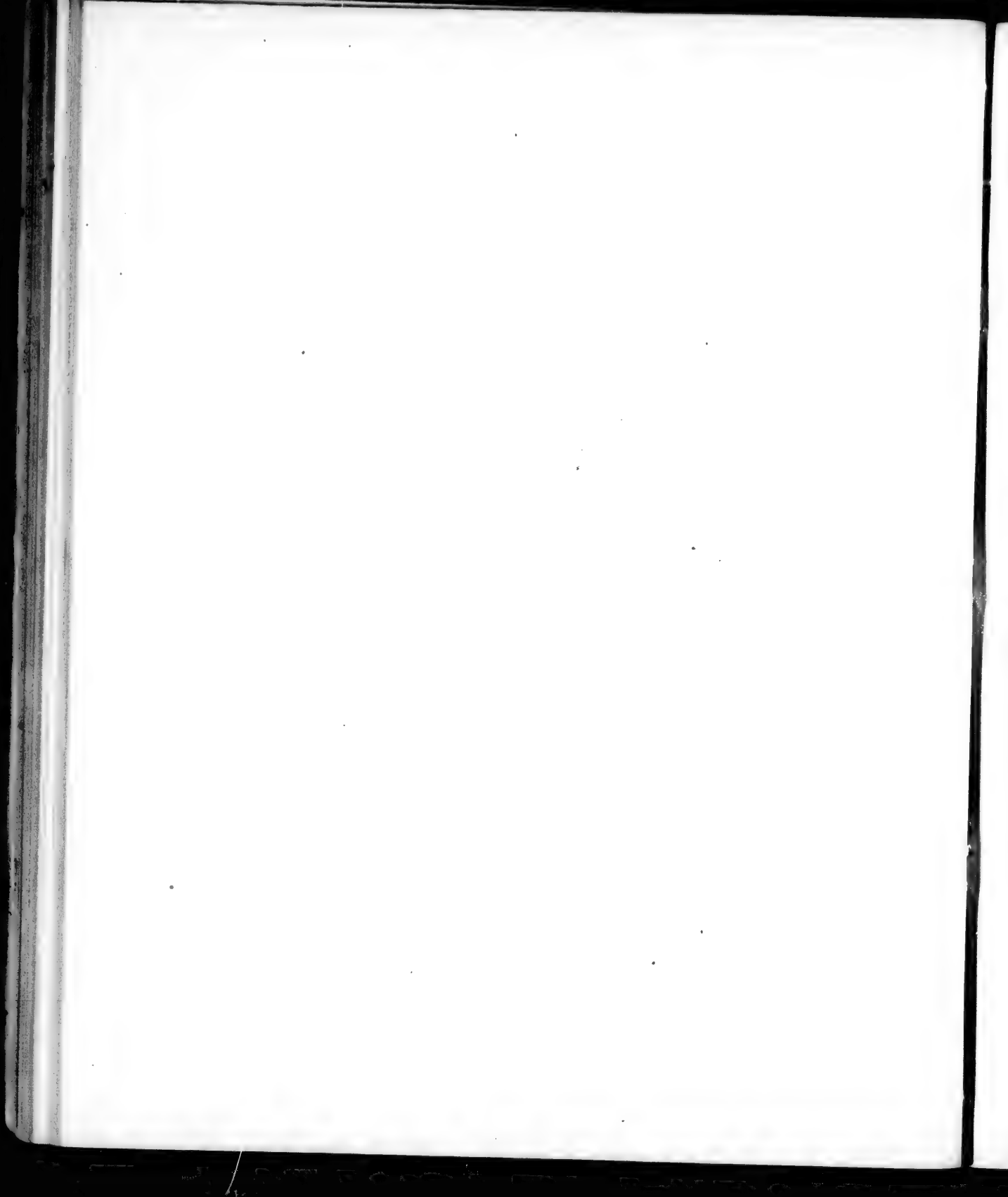
As I am anxious to commence the work at the above-mentioned places before leaving for Quebec, I would take it as a favor if you would please attend to it at your earliest
 610 convenience.

I remain, Sir,

Your most obedient servant,

(Signed)

J. B. BERTRAND.



(40)

SECTION NO. 9, INTERCOLONIAL RAILWAY,

QUEBEC, 10th March, 1870.

C. S. ROSS, Esq., Secretary,

Intercolonial R. R. Commissioners.

DEAR SIR,—Your favor of the 5th inst. has reached us in due course.

620 We have taken communications of the instructions of the Commissioners to the contractors, and we shall endeavor not to lay ourselves open to the same trouble. Efficient measures have been adopted for the prompt and regular payment of laborers, whether employed by us or by sub-contractors. With regard to the works, we have lost no time yet, considering the advanced state of the season when the contract was awarded to us. We have done all that could be done; and it is our intention to push the works with as much vigor as possible.

We remain, dear Sir,

Your obedient servants,

J. B. BERTRAND & Co.,

(Per W. E. Blumhart).

630 (41)

MADISCO, 10th March, 1870.

MARCUS SMITH, Esq., C. E.

DEAR SIR,—Would you please inform me if the stock and implements used on Section 6, is the property of the Government, or whether it still belongs to the contractor.

A reply by next mail would extremely oblige.

Yours very truly,

(Signed),

J. B. BERTRAND.

(42)

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

DALHOUSIE, 12th March, 1870.

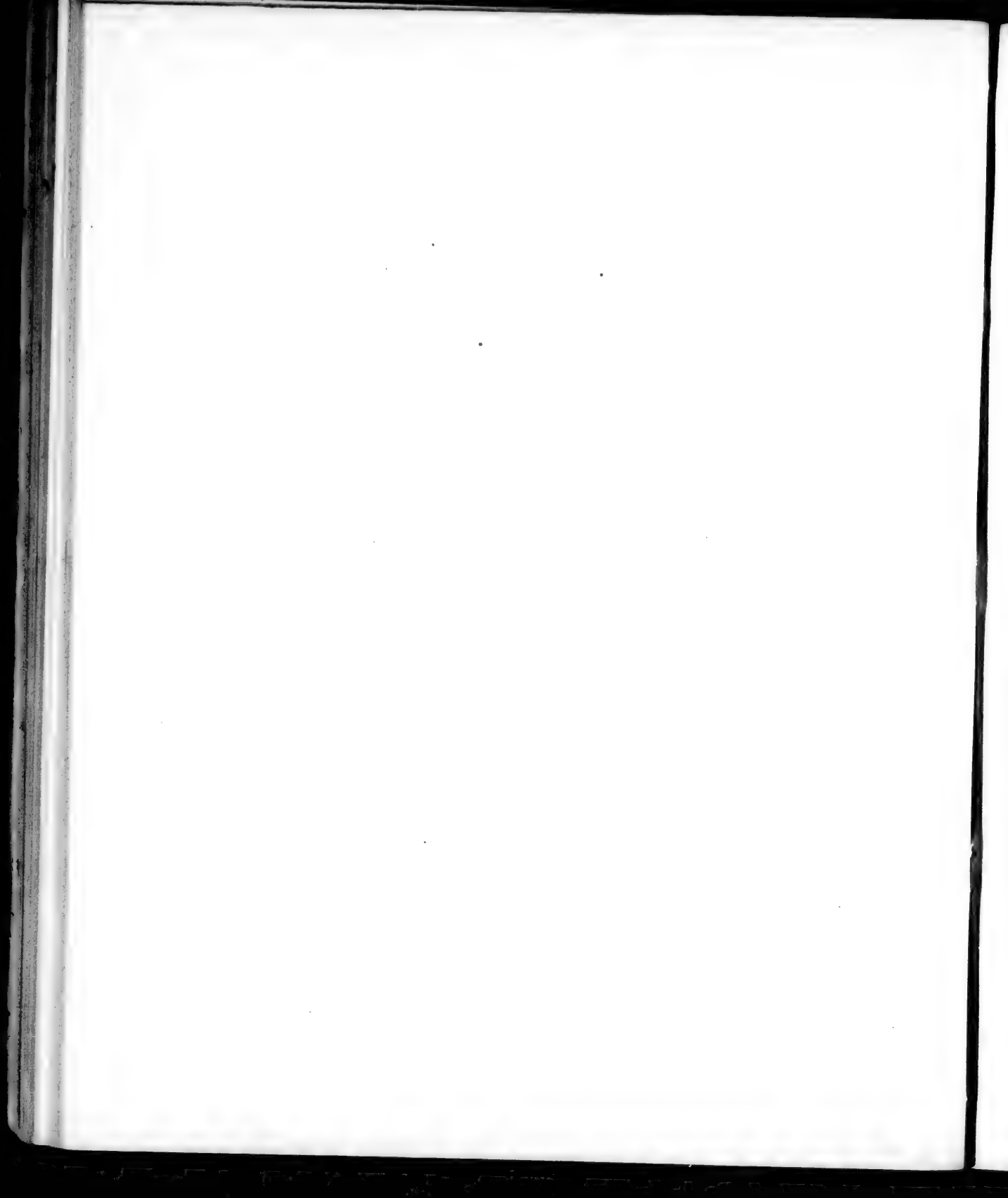
J. B. BERTRAND, Esq.,

640

Madisco :

DEAR SIR,—In reply to your letter of the 9th ult., I beg to refer you to the book of general plans of structures for the information you require, as I infer it is merely to enable you to make the necessary arrangements for getting the stone and other material required.

In the list of structures attached to your bill of works for Section No. 9, you will find the following, viz :—



Bridge, Station 780, see sheet No. 11, general plan.

Culvert, " 787, " No. 7, " "

" " 806+50, " No. 10, " "

Bridge, " 807, " No. 11, " "

650 The detailed plans will be furnished whenever the snow is gone, and the ground in such state that the necessary measurements and data can be had therefor.

I remain, Sir,

Yours truly,

(Signed),

CHAS. ODELL.

(43)

OTTAWA, 14th March, 1870.

To C. ODELL,

Dalhousie, N. B.

Round cedar fence rails should not be less than (6) six inches at smaller end, and fifteen to eighteen feet long; ground sills four and a half feet. See fence short distance west
660 of office.

(Signed),

M. SMITH.

(44)

OTTAWA, March 19th, 1870

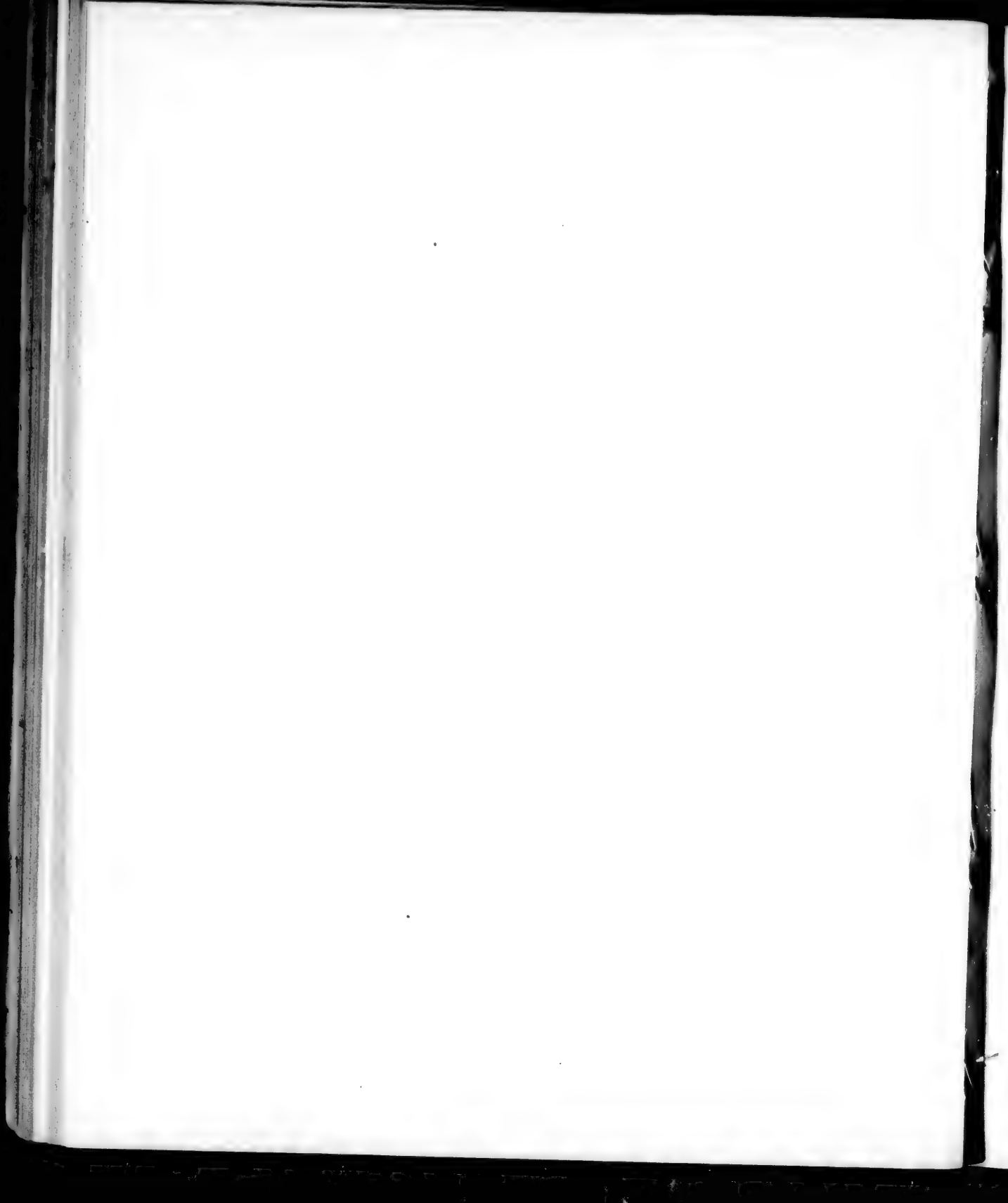
MARCUS SMITH, Esq.,

Restigouche District.

MY DEAR SIR,—The enclosed estimate, giving rates for the several kinds of work on Contract No. 9, is intended for use in preparing the monthly certificates in favor of J. & F. Bertrand.

Yours truly,

SANDFORD FLEMING.



670

INTERCOLONIAL RAILWAY, CONTRACT No. 9.

Estimate of Printed Quantities, with relative prices and amounts, based on Chief Engineer's minimum estimate.

Quantities.	Class of Work.	Rate.	Amount.
		\$ cts.	
288	Acres, clearing and close cutting.	12	\$3,896
26	" grubbing.	96	2,496
227,500	Lineal feet, fencing.	5	11,375
82,000	Cubic yards, rock excavation.	34	68,880
60,000	" borrowing, stations 580 and 790	50	80,000
422,000	" earth excavation.	18	75,960
5,400	Lineal feet, under drains.	10	5,400
800	Cubic yards, riprap.	1 25	1,000
300	" concrete.	3 35	1,005
6,300	" first-class masonry.	10	68,000
6,700	" second-class masonry.	6 75	45,225
880	" paving.	8 35	2,948
	Foundations.		3,000
	Bridge superstructure.		5,600
	Road crossings and diversions.		4,000
	Omissions and contingencies.		81,612
690	Contract Sum		\$354,897

(45)

OTTAWA, 22nd March, 1870.

MESSRS. J. B. BERTRAND & Co.,
Madisco,
Belledune,
N. B.

GENTLEMEN,

I deferred reply to your letter of 5th inst., in hopes that I would be able to forward to you a statement of work done upon Section No. 9 to end of February, but as yet I have not got it. From the return to end of January, it appears that at that date the quantities were:—

700	Clearing and close cutting.....	121 acres.
	Rock excavation.....	856 cubic yards.
	Earth excavation.....	146 " "

Warrants have been

December.....	\$1,756.
January.....	756.
February.....	172.

This last applied for to-day.

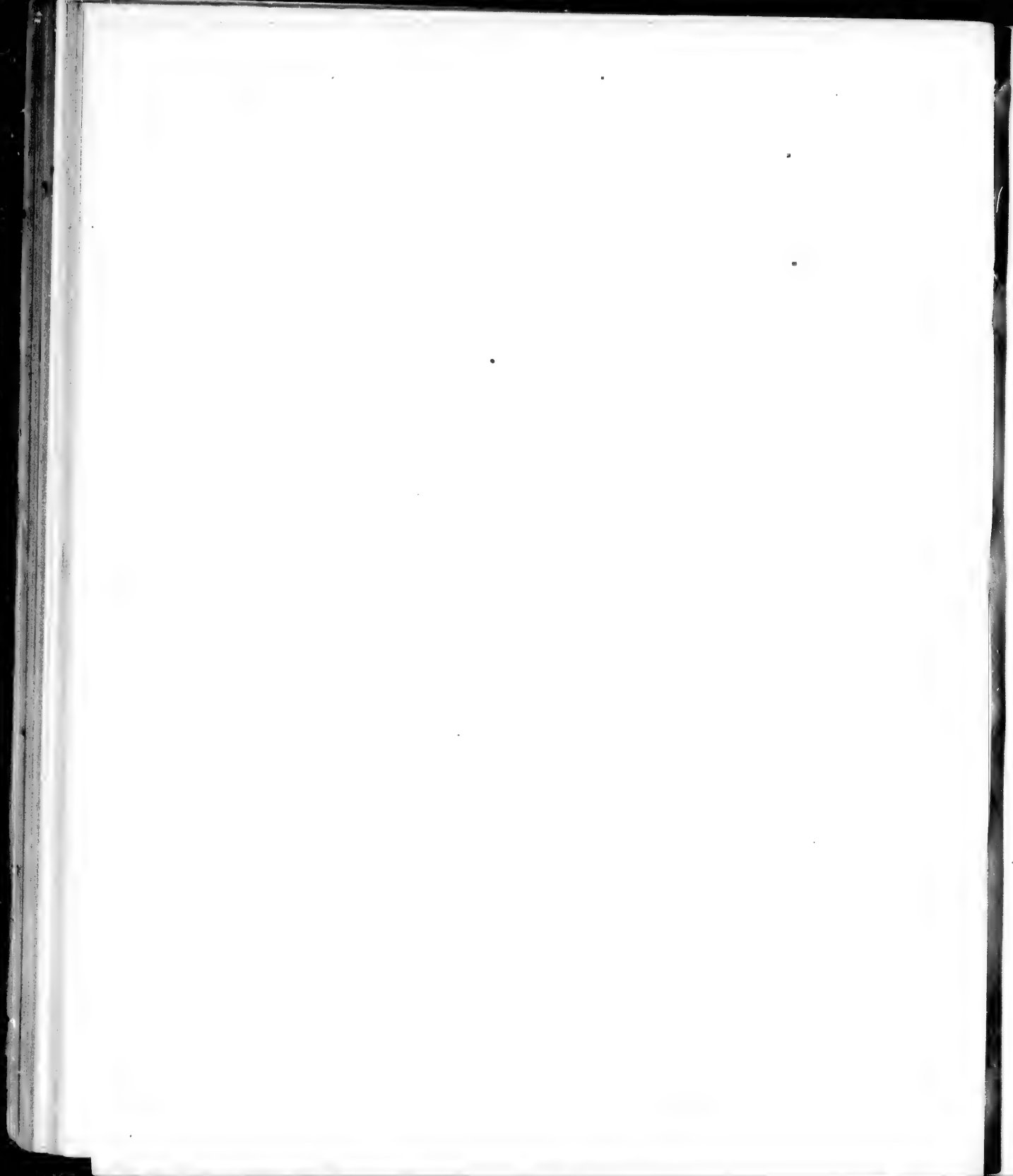
I am, Gentlemen,

Your obedient servant,

710

(Signed)

C. S. ROSS,
Secretary.



(46)

OTTAWA, 29th March, 1870.

CHAS. ODELL, Esq.,

DEAR SIR,—Herewith I send you revised schedule of prices for making out certificates Contract No. 9; also a copy of the last certificate made out accordingly. You will please adopt the quantities and amounts of this in making out next certificate.

Your truly,

(Signed)

M. SMITH.

(47)

MADISCO, April 25th, 1870.

720 J. McMILLAN, Esq., C.E.

SIR,—Would you please give us the length, width, and depth of the ditches between Station 778 and 910.

Also to point the places for the farm gates.

Hoping you may please to favor us with a reply at your earliest convenience.

We remain, yours obediently,

J. B. BERTRAND & CO.,

Per J. M. McG.

(48)

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

730

SECTION No. 9, April 26, 1870.

DEAR SIR,—Enclosed is a letter I received this morning from Bertrand & Co. As I have not received any directions about the matter, I shall not reply until I hear from you.

Yours very truly,

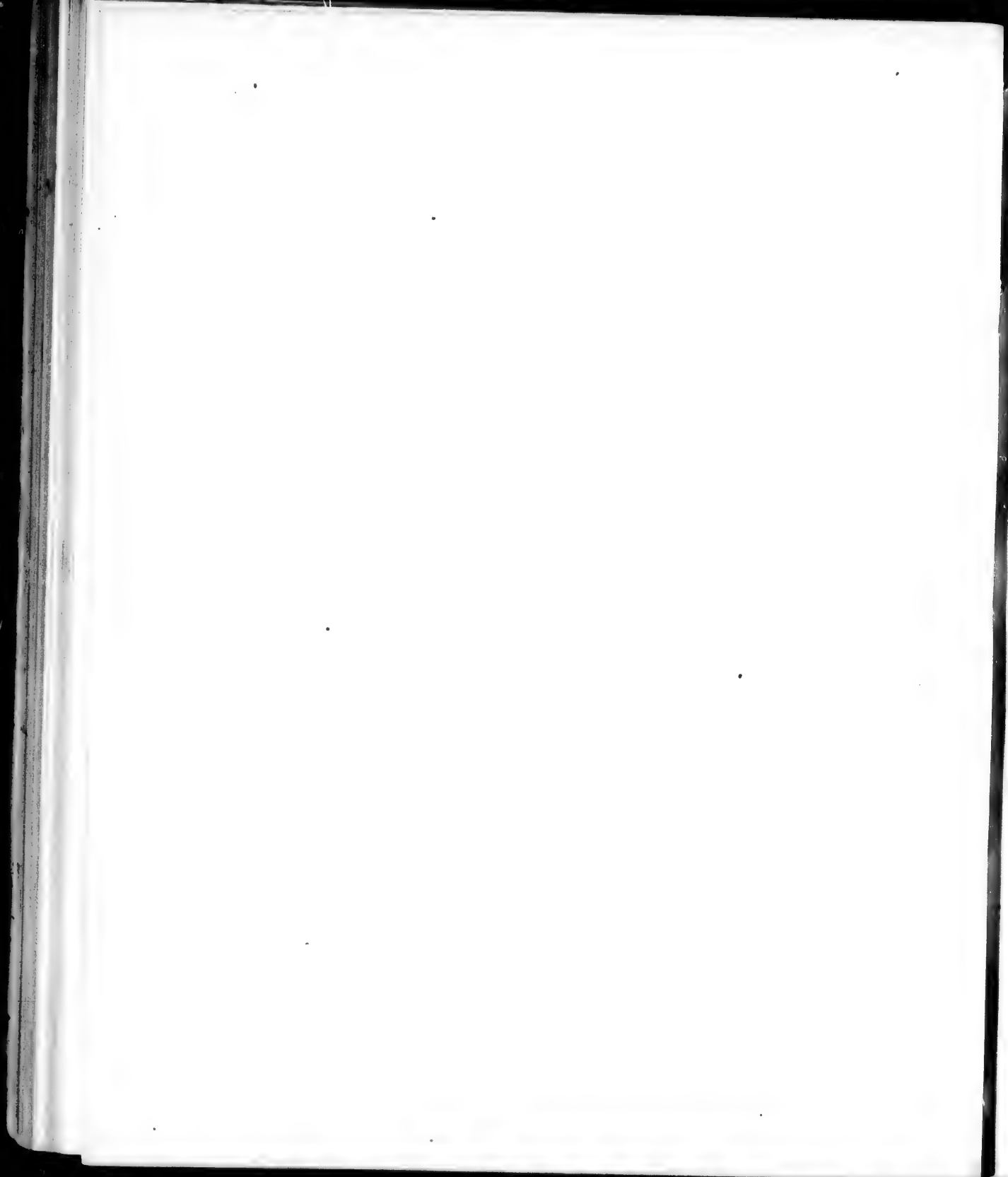
JOHN T. McMILLAN.

(49)

MARCUS SMITH, Esq.,

The Commissioners for the construction of the Intercolonial Railway have now to report to the Governor in Council with reference to the Tenders for Sections Nos. 8 and 15.

* * * * *



740

SECTION No. 15.

Chief Engineer's Estimate, maximum \$550,000.

Forty-four Tenders for this Section, were received, of which the lowest are:—

No. 88, Tracy & Murphy, Halifax, \$316,415 or \$26,150 per mile. No. 139, J. B. Bertrand & Co., Quebec, \$360,020 or \$30,000 per mile.

The Commissioners after careful enquiries about the parties to Tender No. 88, are not satisfied with their skill, experience and resources, and therefore cannot recommend acceptance of their Tender.

The Commissioners being satisfied with the skill, experience, and resources of Messrs. J. B. Bertrand & Co., recommend that their Tender for No. 15, for the sum of 750 \$360,000, or at the rate of \$30,000 per mile be accepted.

INTERCOLONIAL RAILWAY, COMMISSIONERS OFFICE,

OTTAWA, 27th April, 1870.

(50)

(By Telegraph from Dalhousie, N.B.)

28th April, 1870.

TO MARCUS SMITH,

Bertrand's agent is pushing to get work laid out on contract number nine (9).

E. LAWSON.

(51)

OTTAWA, 28th April, 1870.

TO E. LAWSON,

760

Dalhousie, N.B.

Get books, cross sections, &c., Contract No. 9, then take assistants and set out work to keep Contractor going for a short time till the staff is organized.

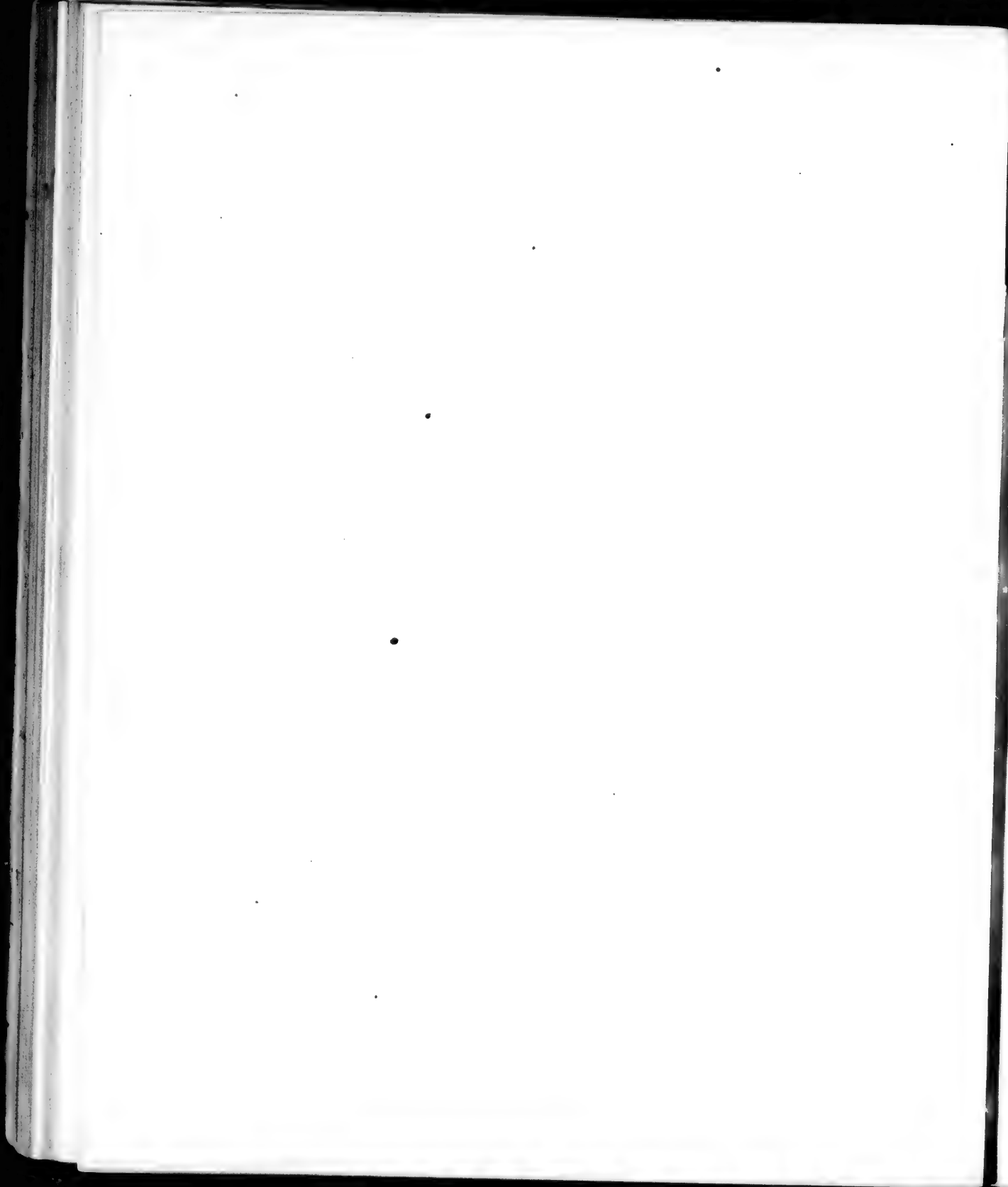
(Signed),

M. SMITH.

(52)

Copy of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 11th May 1870.

The Committee of Council have had under consideration the Report dated 27th April 1870, and the Supplementary Report of the 29th of the same month, from the Commissioners



770 for the construction of the Intercolonial Railway; and, on the recommendation of the Honorable the Minister of Public Works, they submit for your Excellency's approval the following recommendations on the Tenders submitted for the undermentioned Sections of that line.

FOR SECTION No. 8.

That the Tender of Messrs. Berlinguet & Co., of Quebec for the sum of \$462,444 at the rate of \$19,222.33 per mile, be accepted.

FOR SECTION No. 15.

That the Tender of Messrs. J. B. Bertrand & Co., for the sum of \$360,000, or at the rate of \$30,000 per mile be accepted.

Certified.

780

(Signed)

W. H. LEE,
Clerk Privy Council.

(53)

ENGINEER'S OFFICE,

BELLE DUNE, 12th May. 1870.

MARCUS SMITH, Esq.,

Ottawa :

DEAR SIR,—Enclosed are the progress returns for work done on Contract No. 9 during the month of April.

I find there is not as much progress made as in the preceding month, which I cannot understand, as the weather has been equally favorable.

790

I remain,

Yours truly,

(Signed)

CHAS. ODELL.

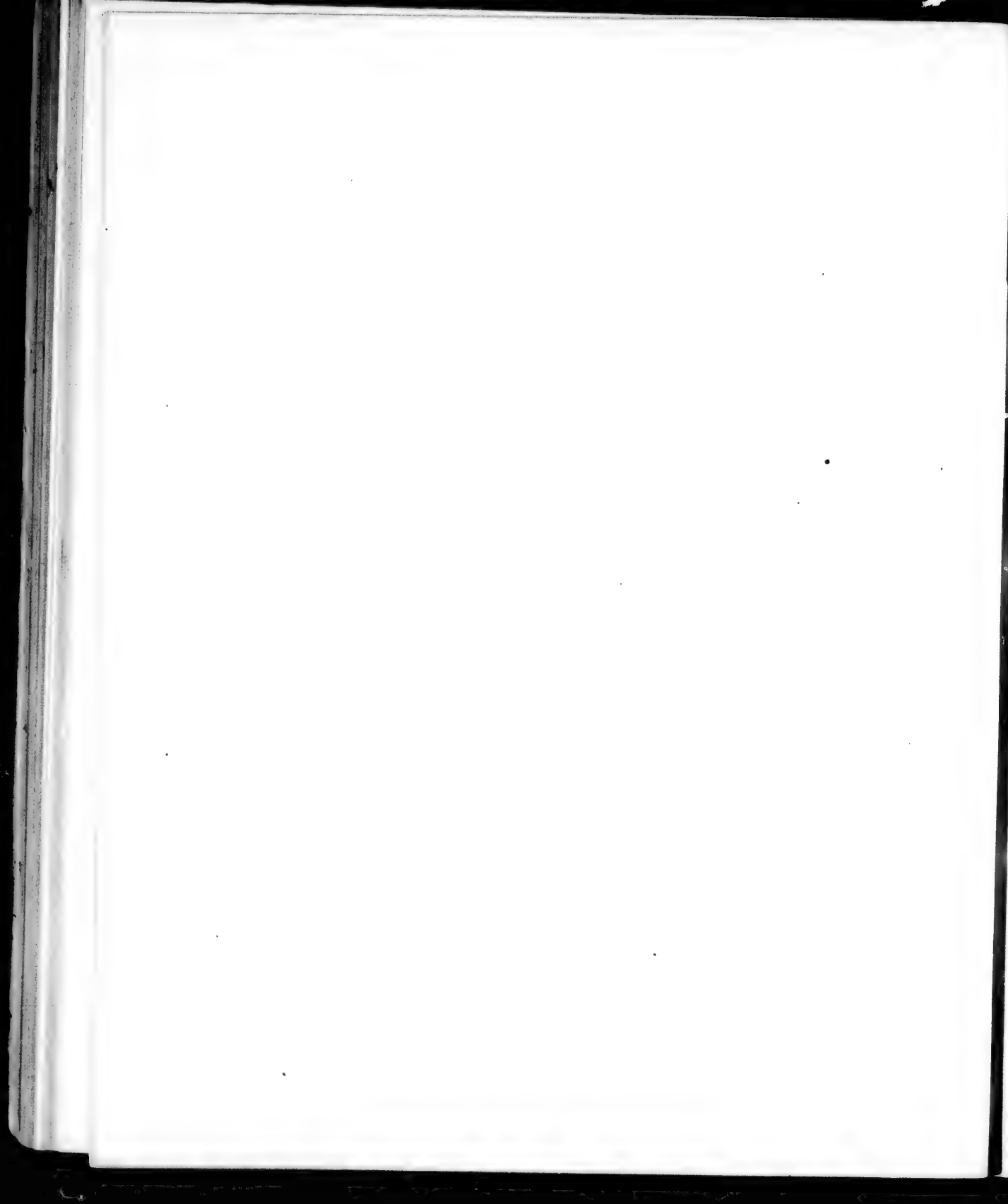
(54)

OTTAWA, May 14th, 1870

MESSRS. J. B. BERTRAND & Co.,

Quebec :

GENTLEMEN,—I have to inform you that, under authority of the Privy Council, it is probable the Commissioners will be in a position to offer to you a contract for Section No. 15. There are circumstances which would require the Commissioners to alter the amount



and make it somewhat different from the sum in your tender. All will be explained when 800 enquiries now being carried on are completed, and you will be duly advised.

I am, Gentlemen,

Your obdt. servant,

(Signed)

C. S. ROSS,

Secretary.

(55)

QUEBEC, 17th May, 1870.

C. S. ROSS, Esq.,

Secretary Intercolonial Railway Commissioners :

Sir,—Your favour of the 14th inst. reached us in due course. With regard to the contract and alterations referred to, we shall wait for further explanations ; and any 810 enquiries we may receive on the subject will receive our prompt and respectful attention.

We remain, Sir,

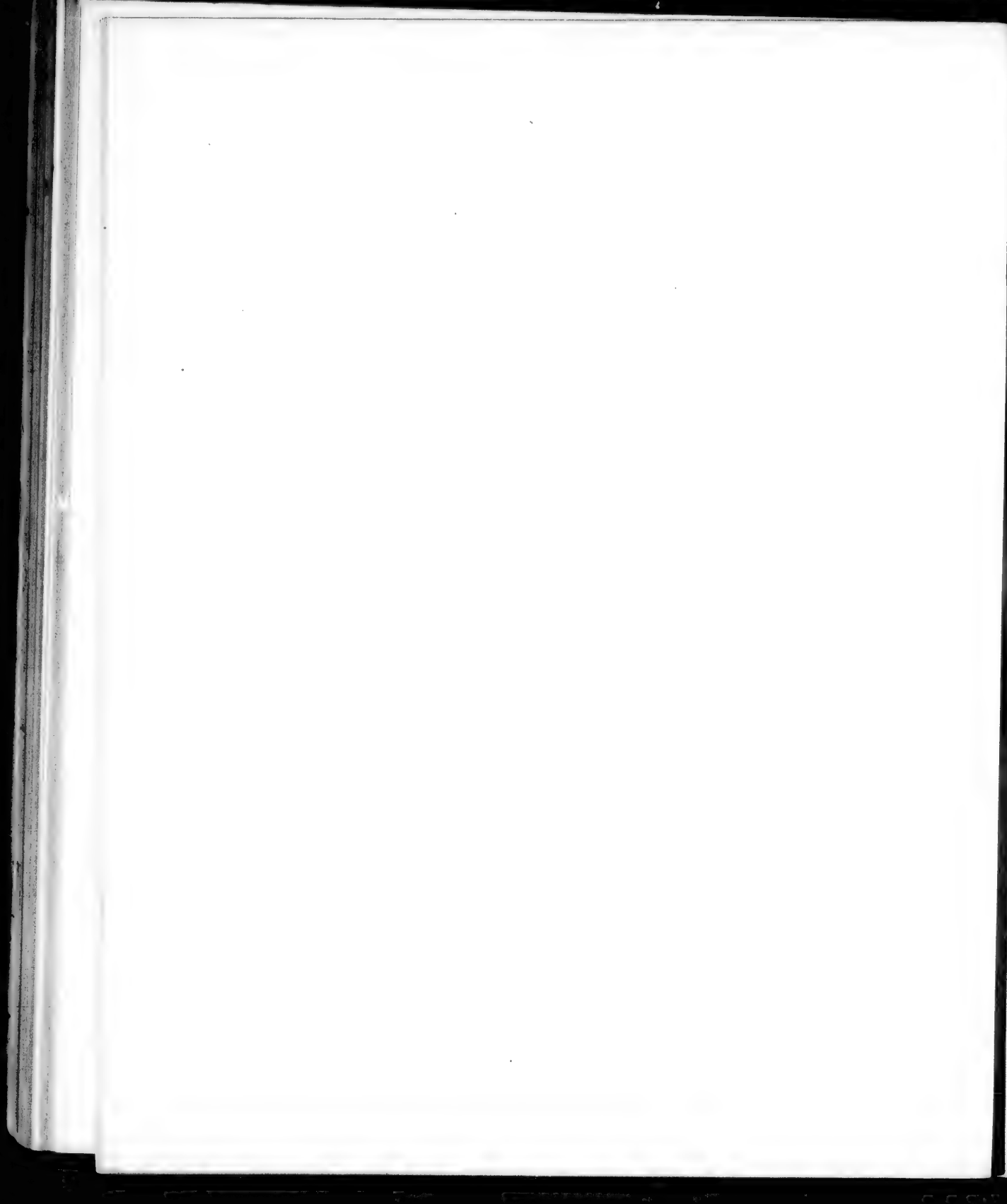
Your most obdt. servants,

J. B. BERTRAND & Co.

per Wm. E. Blumhart.

MEMORANDUM OF ALTERATIONS.

Rock.....	7,600 cubic yards.	Contract sum, tender.....	\$360,020
	6,500 " "		
	1,100 " "	less at \$1 per cubic yard.....	1,100
			<u>\$858,920</u>
820 Earth.....	630,000 " "		
Bill works.....	607,000 " "		
	23,000 " "	more at 20 cents.....	4,600
		Contract sum.....	<u>\$868,520</u>



(56)

MADISCO, 23rd May, 1870.

MARCUS SMITH, Esq.,

Chief Engineer,

District of Restigouche.

SIR,—We are in want of an engineer who has authority to give us measures and proportions.

830

Yours very respectfully,

(Signed),

J. B. BERTRAND & Co.,

Section No. 9.

(57)

OTTAWA, 28th May, 1870.

to CHAS. ODELL,

Dalhousie, N. B.

Telegraph work done, materials delivered this month, contract nine, as soon as possible; also, what preparations made for starting masonry.

(Signed),

M. SMITH.

(58)

DALHOUSIE, 31st May.

840 S. FLEMING,

Ottawa.

Brook at four seventy-one (471), crosses public road by culvert four (4) feet by two (2) feet three (3) inches; was nearly full this spring and during freshets; holds water back.

(Signed),

P. A. PETERSON.

(59)

OTTAWA, May 31st, 1870.

MARCUS SMITH, Esq.

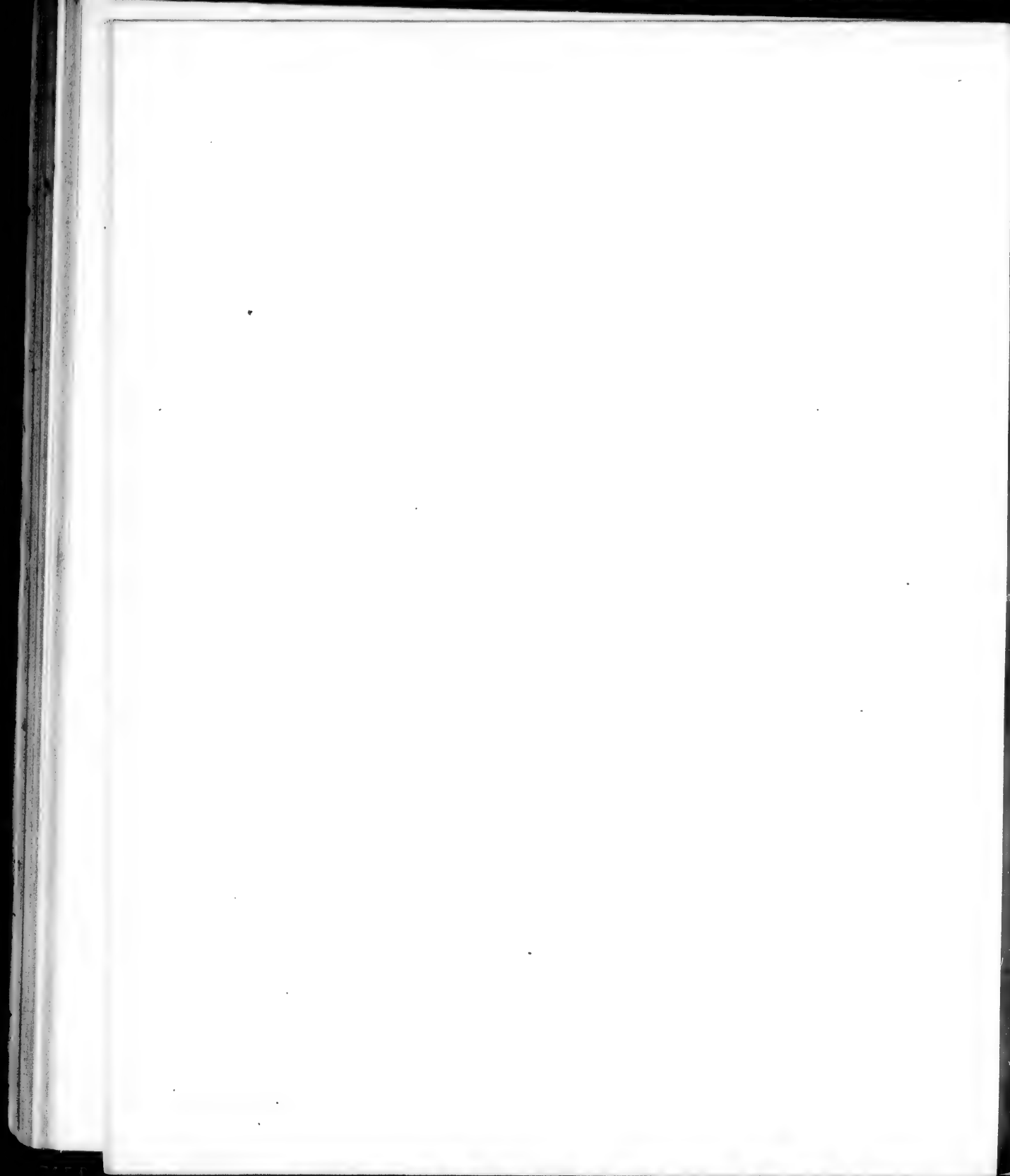
MY DEAR SIR,—I have received the telegram on the other side from Peterson. It will be necessary, I should say, to make the culvert at Station 471, Section 15, a 4 foot arch, instead of box $2\frac{1}{2} \times 4$.

850

Yours truly,

(Signed),

S. FLEMING.



(60)

BELLEDUNE. 3rd June, 1870.

MARCUS SMITH, Esq.,

District Engineer.

DEAR SIR,—I herewith enclose the estimate of work done on Contract No. 9 during the month of May.

I observe there is no advance in the amount of work done over last month, which I remarked to you before was falling off from the previous month.

I replied to your telegram of the 30th on Wednesday last, but was unable to give the 860 per-centage of the whole contract, not having a copy of the Chief Engineer's Price List with me.

As regards preparations for starting masonry, there is not a stone delivered yet. They have 100 barrels cement on hand, and say they are burning lime somewhere. They requested to have a culvert staked out, which I had done at once, and they are engaged excavating it.

I remain, yours truly,

(Signed)

CHAS. ODELL.

(61)

MADISCO, 8th June, 1870.

CHAS. ODELL, Esq., Engineer.

870 SIR,—We would respectfully request of you to lay out the rock cutting between 197 on the profile and Belledune River; also the culvert at stream. Station No. 222; and also distance between the fences, between Public Road, Station 780, and 808.

We remain, very truly yours,

(Signed)

J. B. BERTRAND & Co.

(62)

MADISCO, 8th June, 1870.

CHARLES ODELL, Esq.,

Engineer :

SIR,—Would you please send some person down to our quarries at new Bandon and Grand Anse, to inspect our building stones there.

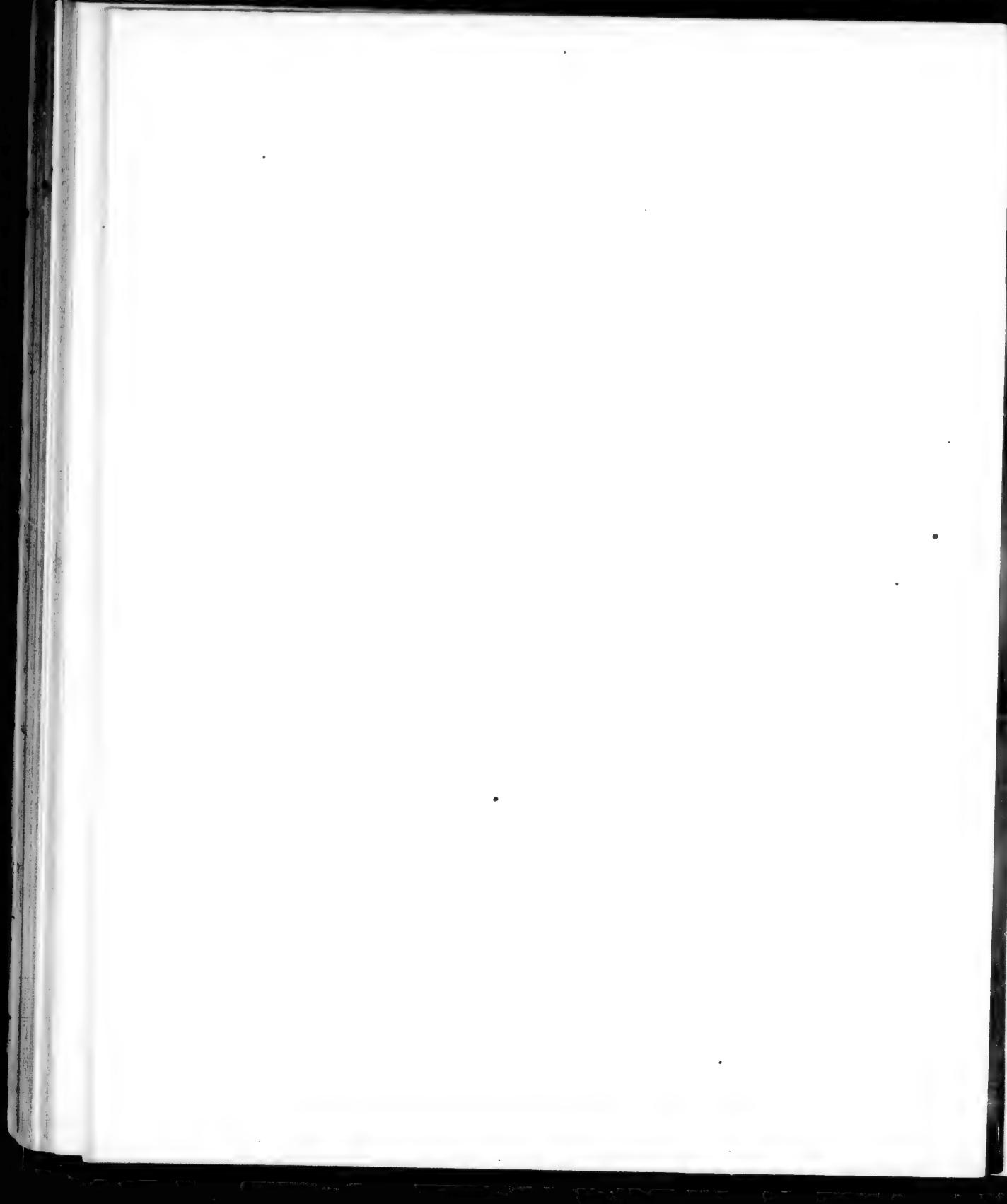
880

We remain,

Yours respectfully,

(Signed)

J. B. BERTRAND & CO.



(63)

ARMSTRONG BROOK, June 8th, 1870.

CHAS. ODELL, Esq.,

Division Engineer.

Contract No. 9, I. R. R. :

DEAR SIR,—I beg to inform you that I have examined the stone that Mr. Bertrand's men are blasting at Station 205+48. I find that a small portion of them are suitable, and may be used for rubble masonry, that is to say, those of them which may be found to be free 890 from seams, (and such as we cannot very well "reject.")

I don't think that any *large* quantity of stone can be got at the above-named place, the prospect for getting enough stone to build even one culvert is not good, and cannot be depended upon.

I am yours, &c.,

(Signed)

A. L. SINCLAIR.

(64)

QUEBEC, 16th June, 1870.

C. S. ROSS, Esq.,

Secretary Intercolonial Railway Commissioners :

DEAR SIR,—We beg to acknowledge receipt of your letter on the subject of Emigrant 900 Labor on the Intercolonial Railroad, but do not find any practical way of availing ourselves this summer of the suggestions you make.

The sections on which we are engaged are, fortunately for us, in a tolerably well settled part of the country, and we find a considerable amount of local labor available ; besides which, we have in this neighborhood and district a large working population from which we can freely draw, both for common labor and for the higher class of mechanics ; should we, however, be disappointed on these events, and find that we could profitably employ more than we can obtain, we will then correspond as you advise, making our wants known, also rates and kinds of labor, so as to arrange, if practicable, for next summer's work. For the present season, we think there is not time for any reasonable prospect of doing so.

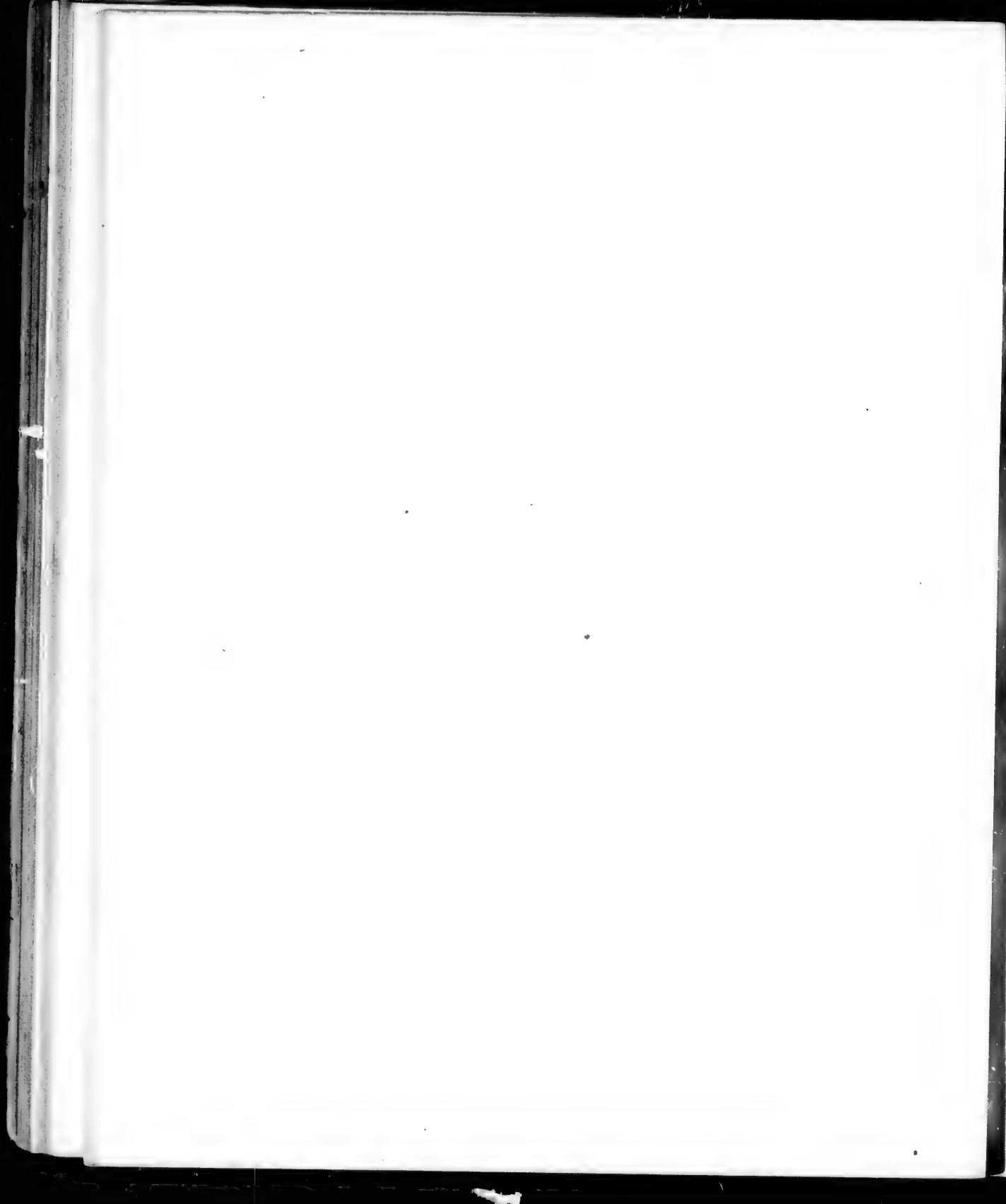
910

We remain, Dear Sir,

Your obdt. servant,

J. B. BERTRAND & CO,

Per W. E. Blumhart.



(65)

BATHURST, NEW BRUNSWICK,

June 16th, 1870.

MARCUS SMITH, Esq.,

Dalhousie.

DEAR SIR,—The following members of my staff have arrived here: Mr. Dickie, Assistant Engineer; Messrs. Maingy and Mann, rodmen; and Mr. McDonald, chainman.

920 I shall send them out to-morrow to lay out land widths for clearing, and will keep them at this till finished, or till I receive further instructions from you.

I suppose Mr. McLaughlin has by this time finished the tracings of section and plan.

I think it would be as well to commence staking out the work, so that the contractor may be able to commence work as soon as he is ready, and in as many places as he may wish. I should like to get the books of instructions, and my location level books, as well as the green books for cross sections.

I think it would be well to get an office here at once; so that I could get it put in order before work commences.

Yours very truly,

930

(Signed)

P. A. PETERSON.

(66)

MADISCO, 20th June, 1870.

CHARLES ODELL, Esq.,

Chief Engineer.

Section No. 9.

SIR,—At Nos. 805, 984 and 825 there is very little work laid out; will you please send some of your engineers, and oblige

Yours respectfully,

(Signed)

J. B. BERTRAND & Co.

Per J. P. Turcotte.

940

(67)

ARMSTRONG'S BROOK.

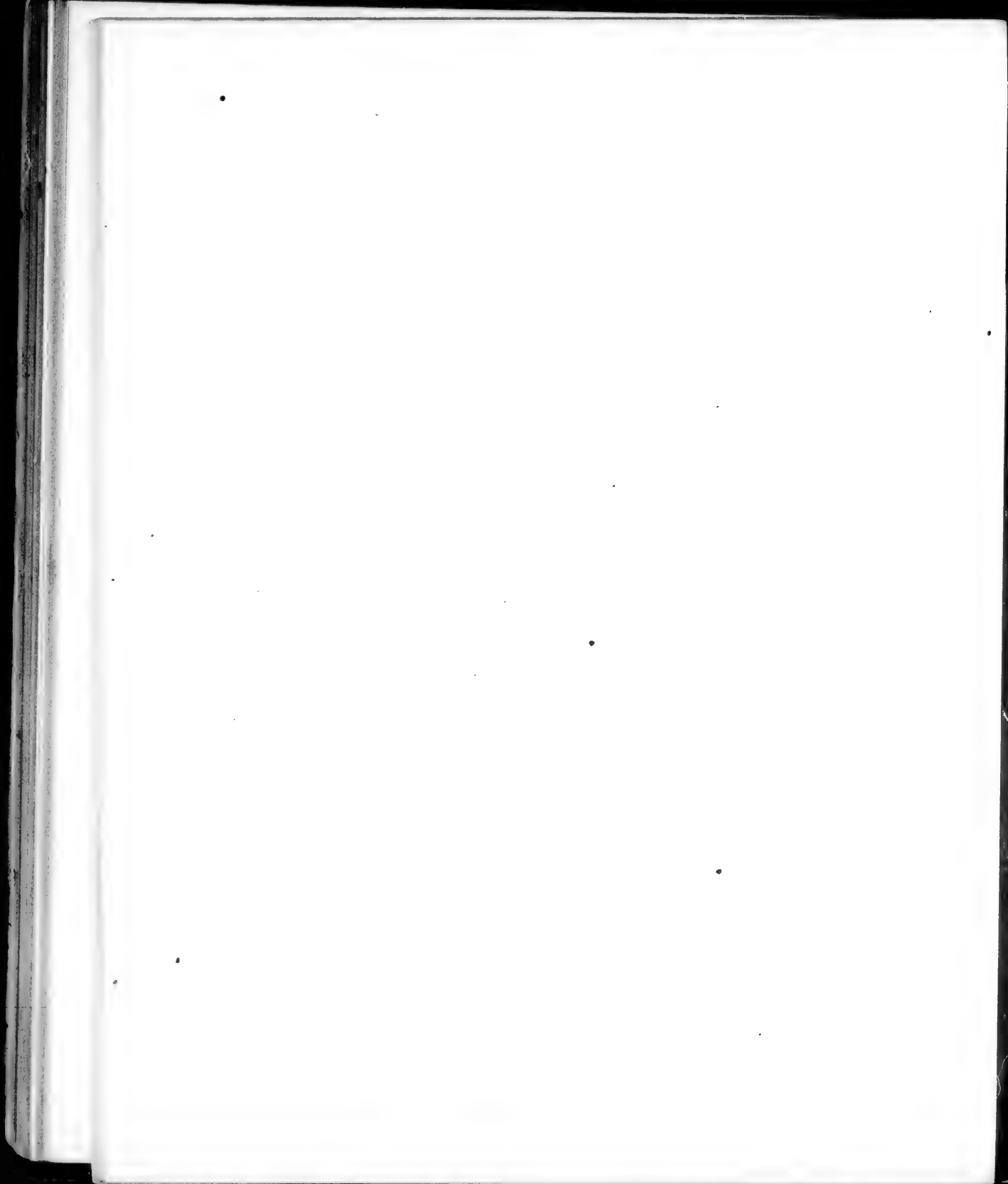
27th June, 1870.

CHAS. ODELL, Esq.,

Division Engineer.

Contract No. 9, I. R. R.

DEAR SIR,—Agreeable to your instructions I have examined all the stone quarried at Grand Anse for J. B. Bertrand & Co.; they are scattered in small quantities along the shore for a distance of about 9 miles. As near as I can judge, there will be about 1400 cubic yards



all ready for shipment. I find about one half of them large enough for first-class work.
 950 About 70 per cent of them is in tide way.

Sufficient quantity of stone can be got in the Bluff, without quarrying in the tide. A large portion of them will be held by the workmen till their claims are satisfied. Very little doing down there at present—only a few men at work, probably between 80 or 40. As to the quality of the stone, it is good, and that portion of them which is in the salt water, I think ought to be used in such structures as will be in close proximity to the salt-water. I am not prepared to say that they are as durable as stone that were never touched with the salt-water: however use your own discretion about that. The stone are good in every other respect, and will stand, I think, the action of the weather well. There is some prospects of getting good lime-stone 3 or 4 miles below Armstrong Brook; what has been turned out will
 960 make good backing, with some ashlar amongst it.

I hope that the above will meet your view, &c.

I am yours, &c.,

(Signed)

A. L. SINCLAIR.

P.S.—The stone at Grand Anse at 18 different places. If you want me to go down your way, please send me word.

A. L. S.

(68)

27th June, 1870.

(By Telegraph from Bathurst.)

To M. SMITH:

970 Bertrand says he has Contract No. fifteen, and wants profiles, &c. I have no instructions to give him anything.

P. A. PETERSON.

(69)

DALHOUSIE, 27th June, 1870.

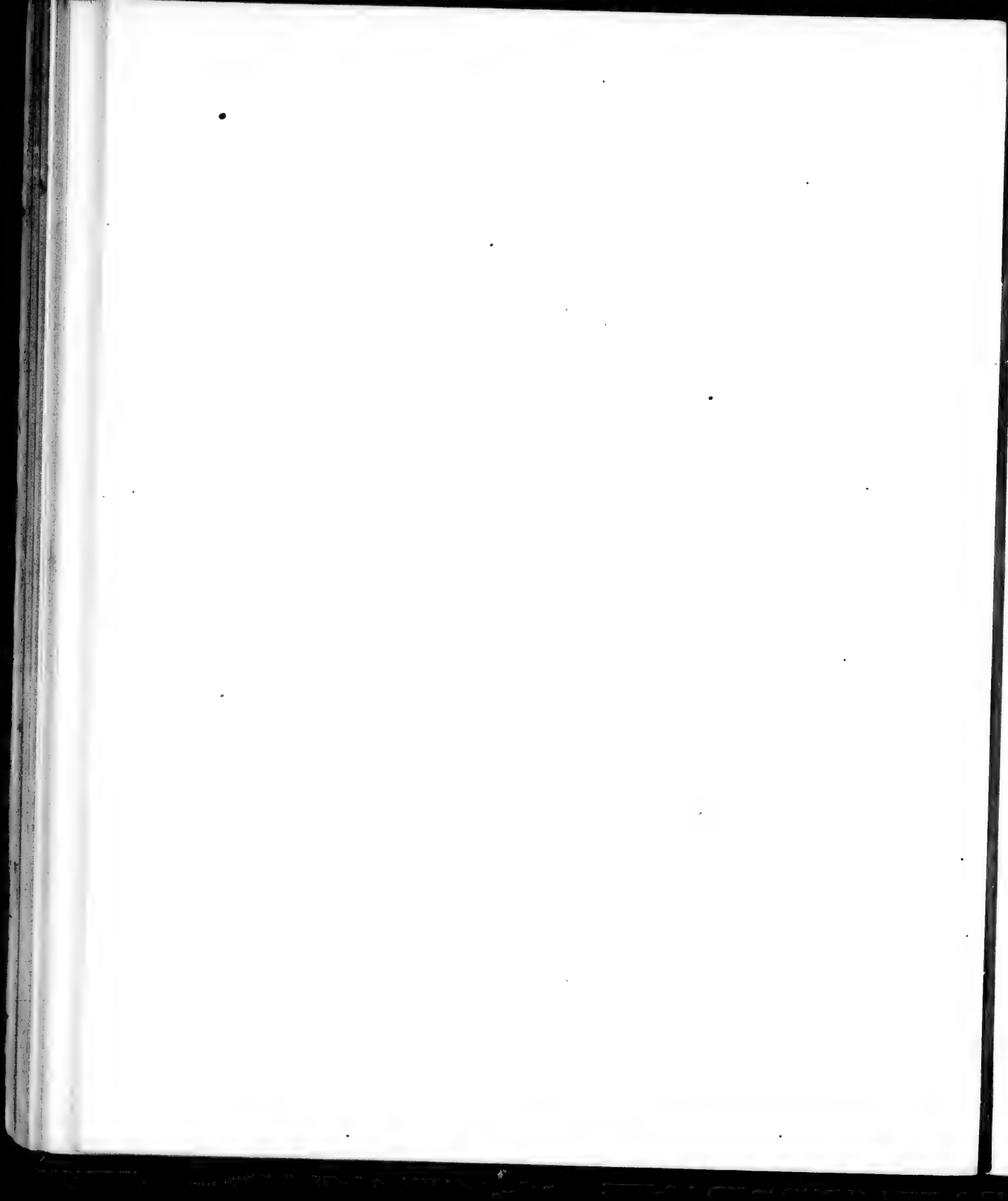
P. A. PETERSON, Esq.:

SIR,—I have had no official notice that Mr. Bertrand is the contractor for No. 15, but Mr. Fleming's Secretary informs me that Bertrand has signed the contract; so, to save time, you had better give him what he wants.

Yours truly,

M. SMITH,

District Engineer.



(70)

BATHURST, N. B., June 27, 1870.

MARCUS SMITH, Esq.,

Dalhousie.

DEAR SIR,—I heard, on Saturday morning, that Mr. Bertrand had some men engaged in clearing the upper end of No. 15. I drove up in the P. M. and saw his agent, who said that Bertrand has signed the contract. I then gave him orders about piling the timber, &c.

Mr. Bertrand called this morning for a profile, on which I telegraphed you that I had received no instructions. I, however, have given him a profile, and when he has gone over the line and decided where he intends to commence work, I shall lay it out for him, even though I receive no official notification of his being the contractor. I was about taking the small house for an office, when Odell informed me that you wished me to take a larger one, so that he could have an office in it. I have been trying to get the Baldwin House that you went to see with me, but I am afraid that the owner will not put any repairs upon it, and repairs are very much needed. The small house would suit me very well, and needs no repairs. In case the owner will not repair the Baldwin House, shall I take it at £20 per annum, and have the repairs made at the cost of the Government?

I enclose a list of articles required for the office, and some things that I wish sent down, such as cross section, original plan to put Vale farm house upon, &c.

1000

Yours very truly,

(Signed)

P. A. PETERSON.

(71)

QUEBEC, 29th June, 1870.

C. S. ROSS, Esq.,

Secretary, .

Intercolonial Railway Commissioners.

DEAR SIR,—As the contract and bond for Section 15 are now signed, we should feel very thankful if you would direct to have all the profiles of that section that were exhibited in different places, sent to us; they are of the greatest use to us, and we presume of no more value to the Commissioners.

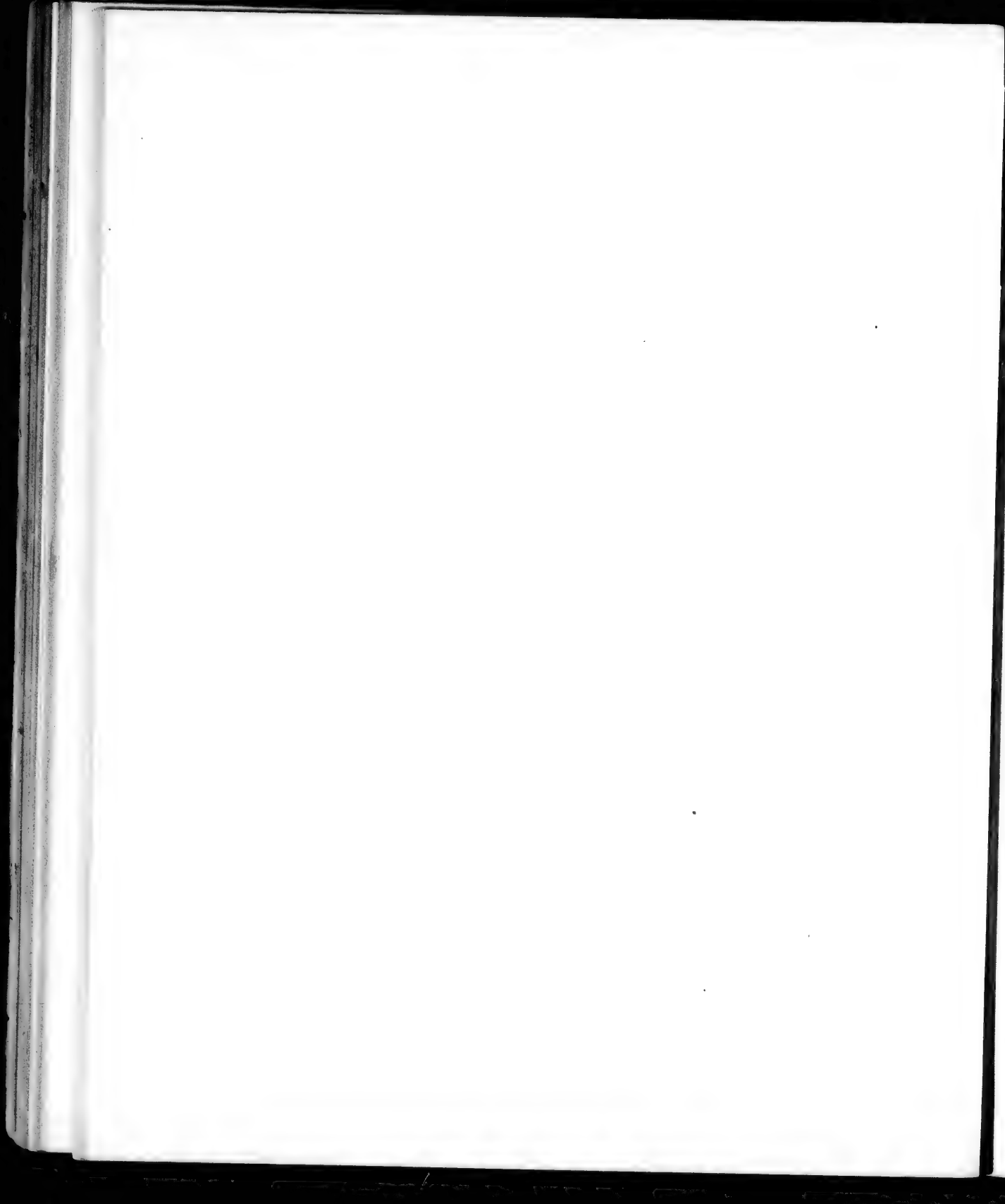
1010

We remain, dear Sir,

Your obedient servants,

J. B. BERTRAND & CO.,

Per W. E. Blumhart.



(72)

OTTAWA, June 30th, 1870.

GENTLEMEN,—In reply to your letter of yesterday, I beg to inform you that the Commissioners decided the contractor should have for his use a copy of the Bill of Works of the Section, and also a copy of the Profile; but only one of each. The others are required for record in this office, for the Chief Engineer, the Engineer of the Section, and District Engineer. So that if you desire more than one copy, you will have to get one made from it. I
1020 send to your address profile of Section No. 15, and copy of Bill of Works.

I am, Gentlemen,

Your obedient servant,

(Signed),

C. S. ROSS,

Secretary.

MESSRS. J. B. BERTRAND & Co.,

Quebec.

(73)

BELLEDUNE, 30th June, 1870.

MARCUS SMITH, Esq.,

DEAR SIR,—I herewith enclose progress return of work done up to end of this month.

1030 They have not as yet delivered any stone for masonry, but I believe the tug boat has arrived, and they will probably commence now.

Yours truly,

(Signed),

CHAS. ODELL.

(74)

MADISCO, 6th July, 1870.

CHAS. ODELL, Esq.,

Chief Engineer,

I. C. R. R., Section No. 9.

SIR,—You would oblige us very much by giving us information with regard to little bridges for farm crossings, and in which manner you want them constructed.

1040

Yours very respectfully,

(Signed),

J. B. BERTRAND & CO.,

Per J. A. TURCOTTE.

(75)

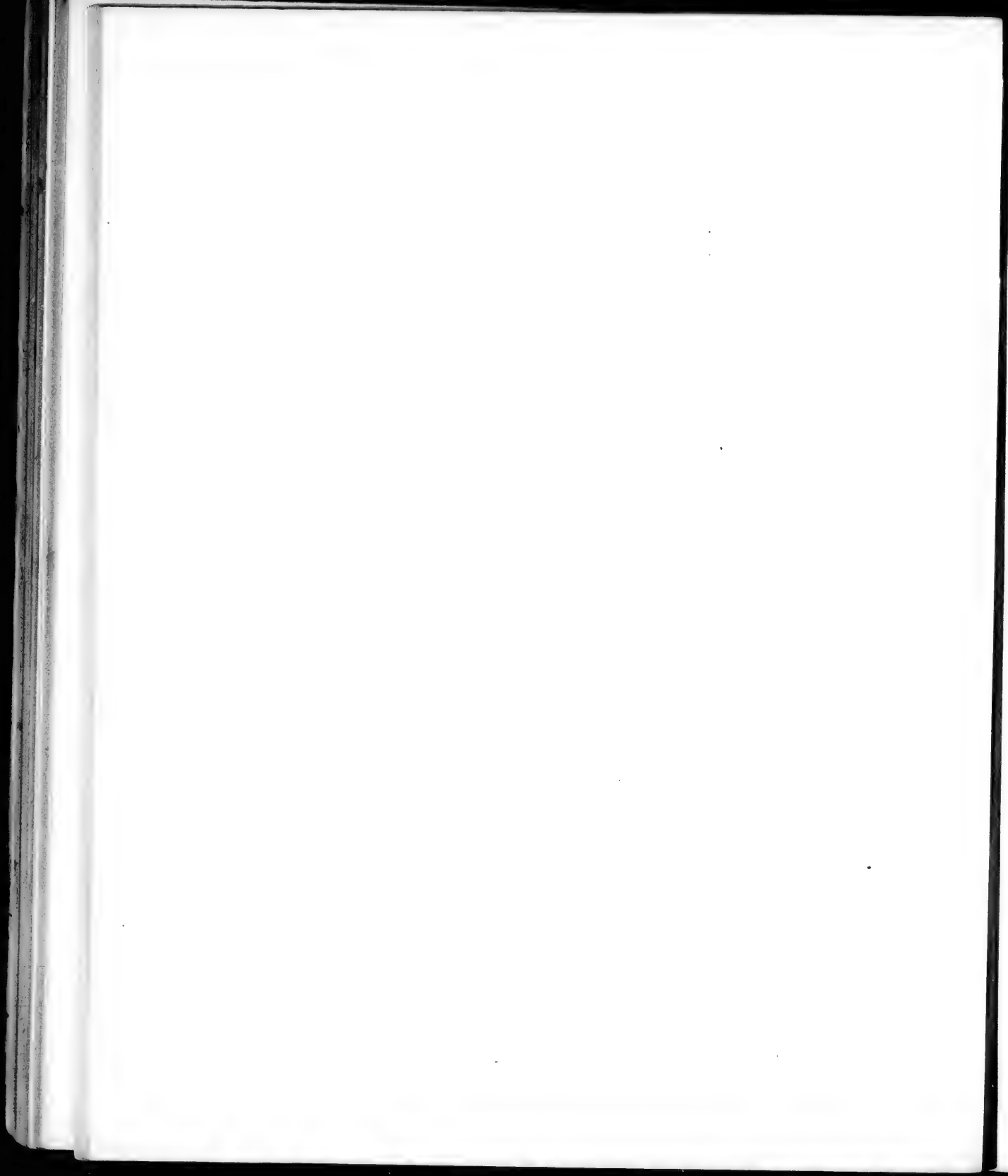
BATHURST, N. B., July 8th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

DEAR SIR,—Mr. Bertrand wishes to commence work between Stations 297.60 and 348.10. Between those points, the embankment exceeds the excavation by 25.898 yards,



and to make up this amount I propose to widen all the cuttings to a 40' base. This will
 1050 increase the excavation by 10.796 yards, leaving a balance of 14.597 yards to be made up
 from side ditches. In the cuttings, these ditches may be made 2 feet deep, with a 5 feet base,

(Sketch)

and they will then yield 2,328 cubic yards, leaving 12,274 cubic yards to be made up from
 ditches beside embankments, which will require them to have an area of 128.59 feet or 64.59
 feet on each side, and may be either 8' deep with a 17' base, or 4' deep with a 10' base.

I think it would improve the line and make the work easier if we were to lower the
 grade between 290.50 and 346, making it .90 per 100, instead of 1.00 per 100, as it now is.
 The objection to the small cuts might be overcome by making them very wide, and running
 wide, deep ditches on either side; in fact, making the line through the cut as it were on an
 1060 embankment: we would then have an easier gradient, less material to haul up grade. The
 culverts at 296.00 and 312.00 might be done away with, and the 12' arch culvert at 325.00
 would be shortened. Against these advantages we have to place longer haul of the extra
 material taken out between 290.50 and, say, 305.

I would be glad to hear from you as soon as possible, as Mr. Bertrand thinks he can
 .ke a start at the earthwork early next week. In the meantime, I am having these cuts
 laid out for a 40' base. I am still without an office, and none of the articles I ordered from
 Dalhousie have been sent.

Yours very truly,

(Signed)

P. S. PETERSON.

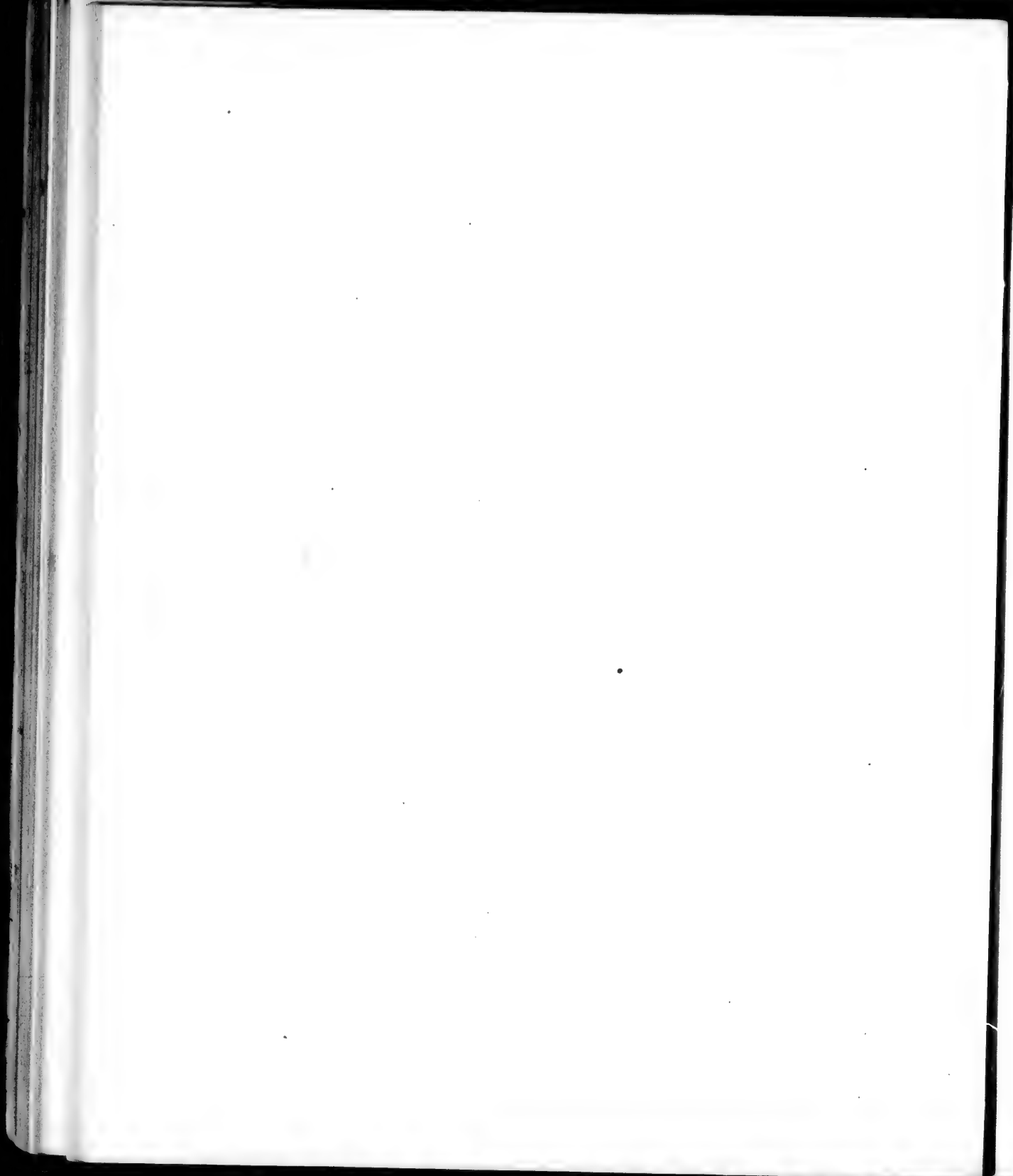
1070 (70)

9th July, 1870.

C. ODELL, Esq.:

Sir,—Herewith I send you the specification for cedar log fencing, approved by the
 Chief Engineer, and which is practically in accordance with the sketch and instructions I
 gave to Mr. Bertrand in November last, (showing him at the same time a piece of fencing on
 the side of the public street some 300 yards west of this office as a specimen.) It also agrees
 with my telegram to you from Ottawa, 14th March last, which runs thus: "Round cedar
 " fence rails should not be less than six inches (diameter) at the smaller end, and fifteen to
 " eighteen feet long. Ground sills four and a half feet. (See fence short distance west of
 " office.") The length of the rails is specified to be 16 feet. My instructions say 15 to 18
 1080 feet, a foot more or less being immaterial, provided they overlap the block one foot at each
 end. Thus rails 16 feet long make a pannel 14 feet long. This is important.

I am at a loss to understand how, with my telegram before you, you could allow the
 contractors to put up a fence with rails generally under the dimensions specified; some of them
 indeed not exceeding 8 inches in diameter at the smaller end. You must be aware that the
 merit of this kind of fence depends greatly on its weight, and that even with very heavy rails, it
 is cheaper than the fencing required by the printed specification attached to, the contract and
 its adoption is a concession made in favour of the contractor, and he must make a good and
 substantial fence in accordance with the specification. There is no other way of remedying



- the neglect in the fencing already erected but by taking it down and rebuilding it, but the Chief Engineer, wishing to be as generous to the contractor as is consistent with his duty to the Government, will leave it to your discretion to admit good, straight sound rails that are full 5 inches diameter at the smaller end, but in this portion of the fencing only that is to be taken down and re-erected. All the rails below these dimensions or the greater part of them may be used for fencing in accordance with the printed specification attached to the contract on any part of the line the contractor may please, not in patches of short length, but either all in one length, or in pieces of considerable length. This kind of fence (printed specification) is very suitable for approaches to level crossings of public roads. You will please read this to the contractor, and give him a copy of the specification herewith.

Your obedient servant,

1100

MARCUS SMITH.

District Engineer.

(77)

9th July, 1870.

C. ODELL, Esq.,

SIR,—I beg to call your attention to Sections 16 and 17, of the general specifications. The former provides that the embankment shall be made of sufficient height and width as will allow for the subsidence of the same. Now, I find so far from this having been done, the embankments appear to have been made to the neat height and width at first, so that after subsidence they have to be made up thus.

Sketch.

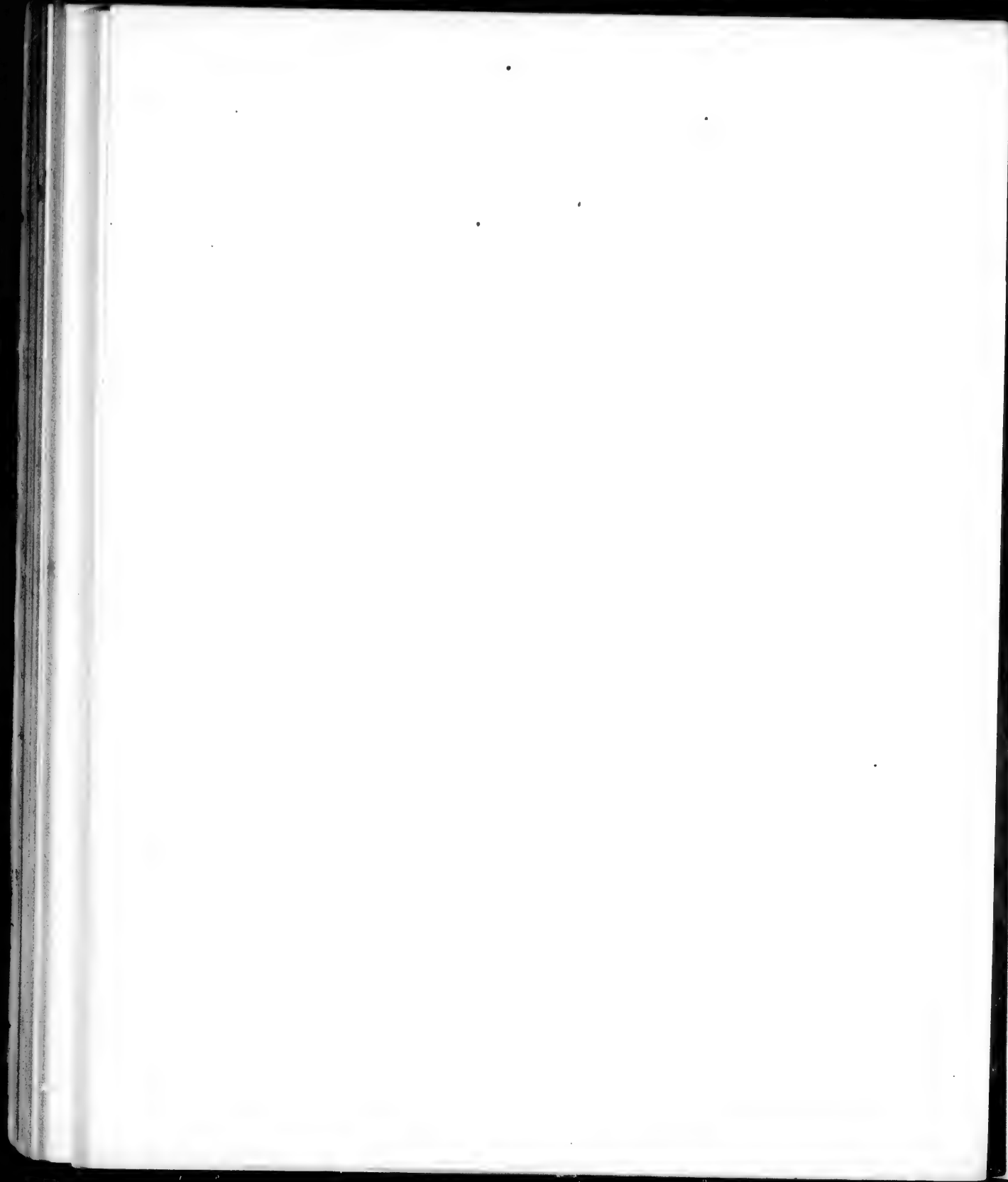
1110

The space between the dotted and firm line showing the position now to be made up, and of course that part over the slopes is mere patch work, and not combined with the earth previously deposited. This cannot be allowed: you must estimate from the height of the embankment the probable subsidence, and have the embankment made that much higher than grades at first, and a certain amount wider than specified, according to the materials. Thus, for sand and gravel an inch to the foot for subsidence, will generally be enough; but for clay it will take from 2 to 4 inches. If inconvenient for the contractor to make the embankment so much above grade at once, allow for it in the width; bearing in mind that for every foot the embankment is too low will require 3 feet extra in width with slopes of $1\frac{1}{2}$ to 1. Section 17 provides that "when material to make up embankments is

1120

"taken from the side, a berm of at least 10 feet from bottom of slope of embankment shall "remain untouched." This must be carried out.

Farm crossings when single must be 12 feet wide at top, and 20 feet when double with slopes 2 to 1, and a berm of at least 6 feet (better 10 feet) must be left untouched at the bottom of the slope. I see in some places nothing has been left for the slopes nor the berms. These must be filled up again. I shall send you a list of level crossings, and you must make your assistants set out the crossings, before the contractor excavates the side ditches (borrow ditches,) too near to the crossing. The inclination of approaches will be 1 in 12 in farm crossings, to 1 in 15 in very low embankments, and for public roads it will be 1 in 20, where this can be obtained, or not greater than any portion of the existing road within



- 1130 a hundred yards of the centre line of railway. In laying out the level crossings, your assistants will take a section over the line thus.

(Sketch.)

From A to B allowing 2 feet above formation at B and C for ballast and rails, they will find the height at intervals between A. B. and B. C. from the new grade of the crossing to the old or natural surface of the ground, and from that calculate the widths for the slopes and the berms.

Your ob't serv't.

MARCUS SMITH,

District Engineer.

1140 (78)

11th July, 1870.

J. B. BERTRAND, Esq., Contractor.

SIR,—In regard to building materials, such as stone, timber, &c., got out by former contractors, and paid for by the Commissioners, the Secretary telegraphs the following instructions :—

“ District Engineers should protect property of Commissioners, and have materials “paid for before being used.”

It therefore becomes my duty to see that all materials such as those referred to in the telegram are not used by the present Contractors until they are paid for, or the amount so determined, that it may be deducted from the next certificate in favor of the contractor.

- 1150 The Division Engineer (Mr. Lawson), Contract No. 6, will point out to you what materials belong to the Commissioners on or near the works, and will send his Inspector of Masonry with you or your agent to the quarries at Grand Anse to show you what stone there belongs to the Commissioners.

I am, Sir, your obedient servant,

MARCUS SMITH,

District Engineer.

(79)

11th July, 1870.

J. B. BERTRAND, Esq., Contractor.

- 1160 SIR,—As there are several varieties of stone on the coast in the vicinity of Grand Anse, some of which are too perishable to be used for building structures on the Intercolonial Railway,—therefore, to save you the expense and time that would be incurred by your bringing materials to the works that could not be used, I beg to request that you or your agent will show the bearer, Mr. James Holmes, General Inspector of Masonry for this District, the quarries from which you are taking the stone, that he may report to me whether the stone is satisfactory or otherwise. Mr. Holmes will at the same time show you the stone at Grand Anse, that was got out by Mr. Jobin, the late contractor, for Section 6; that

was approved by the Inspector of Masonry, and paid for by the Commissioners; and will paint a distinctive mark on the same, to prevent any misunderstanding as to ownership.

I am, Sir, your obedient servant,

1170

M. SMITH.

District Engineer.

(80)

July 11th.

P. A. PETERSON, Esq.

DEAR SIR,—I herewith enclose a tracing of portion of profile showing the alteration of grade I wish you to make between Stations 295 and 346.

Owing to the cut at station 300 being over 16 chains (of 100 feet) the specified length of haul, from where the material will be required, we cannot oblige the contractors to widen it. Please notice Section 17 in "General Specifications," and leave a berm of 10 feet as there described. Commence first with wide ditches from stations 318 to 333, leaving the proper berm. The cuts from Station 307 to 311, and from 313 to 318 can be taken out the full width taken for railway.

Yours truly,

MARCUS SMITH,

District Engineer.

(81)

BATHURST, N. B., July 11th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

DEAR SIR,—I enclose the diary extracts containing the force returns for the week ending July 9th.

Mr. Bertrand's agent informed me on Saturday that he would put a small force at earthwork this morning, but he has not done so.

On receipt of your letter of the 9th inst. this morning. I went to see about a house for an office. As I mentioned in a former communication, the owner of the large house refuses to rent it. There is, however, another house, nearly as large, on a back street, which I can get, it is quite new and will be finished in about a week, but the rent will be \$100 per annum, which is over the amount you informed me the Commissioners would pay. But as Mr. Odell is to have a portion of it, I suppose a part of the rent can be charged to his contract. He went with me to see the house and thinks it will suit very well. The owner of the small house on the bank wants to know, as soon as possible, if I intend to take it; could you reply by telegraph to-morrow morning.

Yours truly,

(Signed)

P. A. PETERSON.

(82)

MADISCO, 18th July, 1870

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie, N. B.

SIR,—We are just in receipt of your favor, dated 11th instant, for which we tender you our best thanks. We hope that Mr. Holmes, the General Inspector of masonry, will find the quarries satisfactory; we have accordingly given instructions to our agent there to give him all the facilities he can for his inspection.

In concluding, we may assure you that we will always endeavor our best to provide best stone and of every other materials.

We remain, Sir,

Your obedient servants,

(Signed)

J. B. BERTRAND & Co.

(88)

MADISCO, 15th July, 1870.

CHAS. ODELL, Esq.,

Chief Engineer,

1220

I. C. Ry., Section No. 9.

SIR,—Will you be kind enough to give us the plan for the masonry of culvert, Station No. 787, as we are ready to proceed with it.

We also beg leave to call your attention on Station No. 970, as we do not exactly see that, according to the approximate quantities given by the Chief Engineer, we have to borrow there. Would it not be possible to make borrowing nearer to save transport.

Your kind consideration to the above will greatly oblige,

Sir,

Yours very respectfully,

(Signed)

J. B. BERTRAND & CO.,

1230

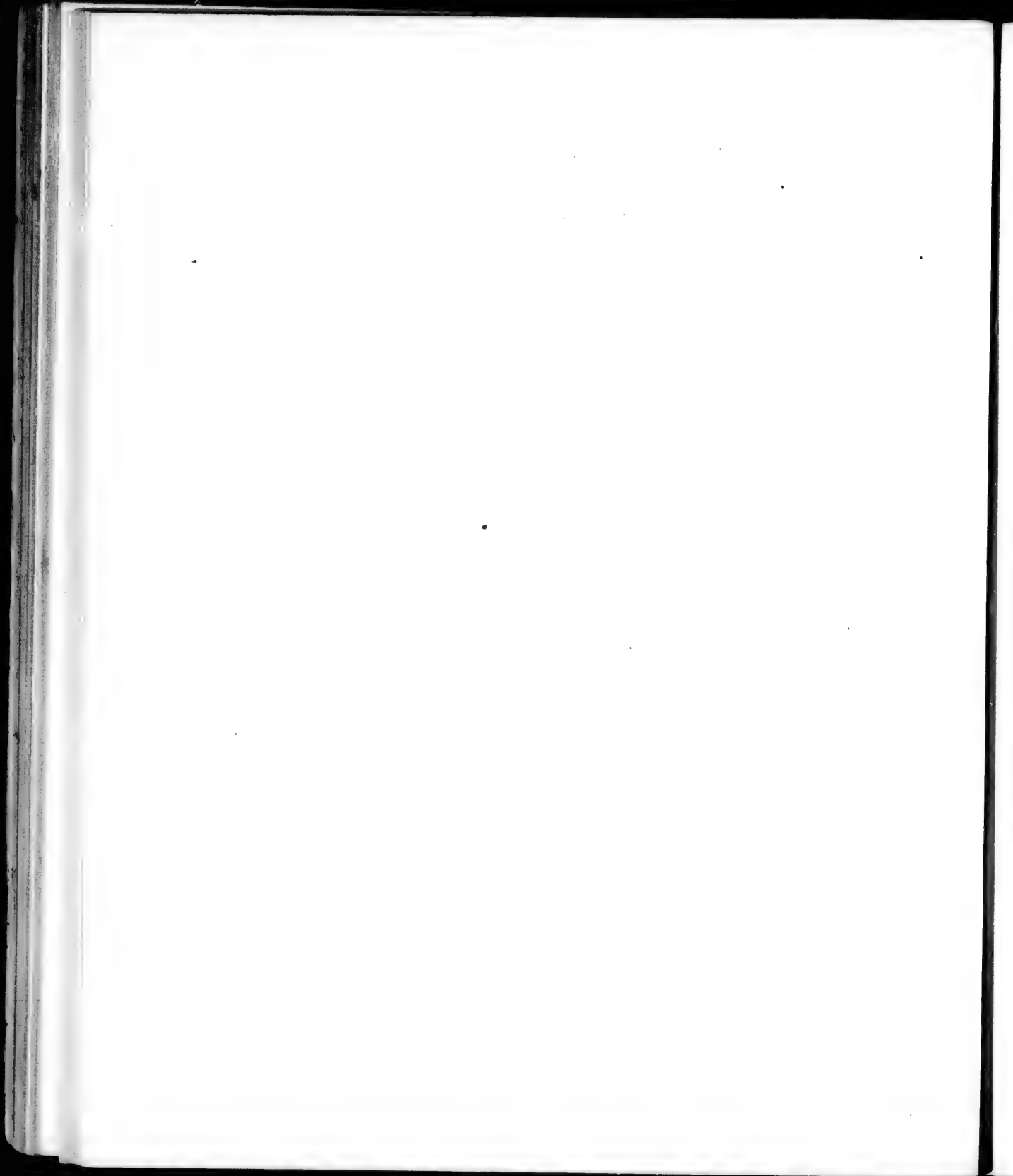
Per J. P. TURCOTTE.

(84)

16th July.

P. A. PETERSON, Esq.,

SIR,—I wrote to you on the 9th instant respecting an office in Bathurst. You must not delay any longer, but communicate at once with McDougall, who is now at Newcastle, and the Commissioners will instruct him what amount they will allow on a larger house; though I think if you had taken the small house we looked at they would not object to pay the



whole amount (\$60), and I am not sure they will allow the office for Section No. 9 to be in Bathurst unless the contractor's office were there also; but see McDougall at once about it. The Chief Engineer requests that the record book of levels, cross sections, &c., shall be
 1240 sent in with as little delay as possible; and, as the contractors on Sec. 15 have not commenced any work of importance, I expect you have got your books ready to send now. You will also get the profile on the larger scale ready for your own use on construction as soon as possible.

Your obt. svt.,

M. SMITH,
 District Engineer.

P. S.—Apply to McDougall for stationery, &c.

(85)

July, 18th, 1870.

SANDFORD FLEMING, Esq.,

1250 Chief Engineer, I. C. R. R.

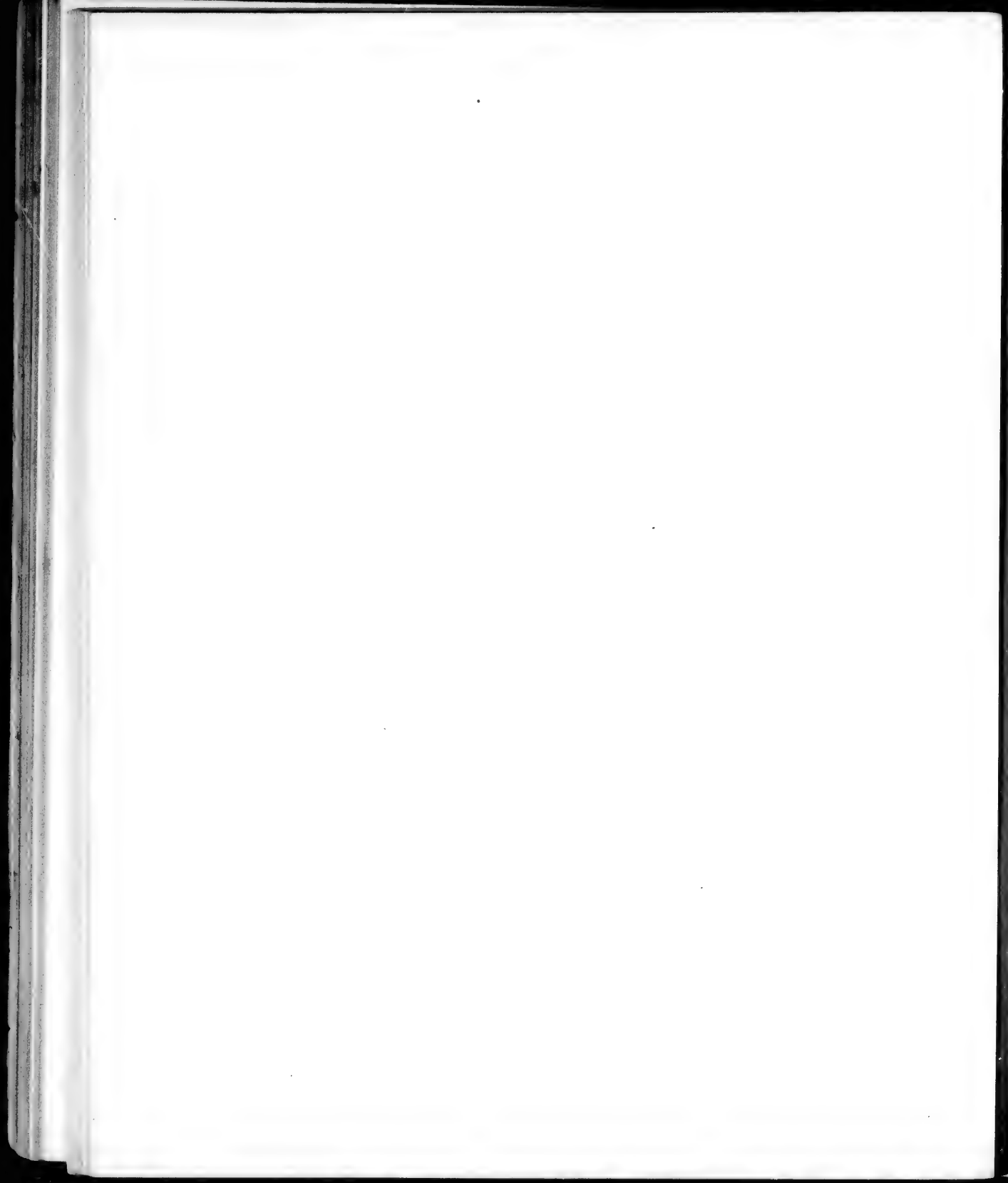
MY DEAR SIR,—Mr. Holmes (General Inspector for this District) has just returned from his inspection of the quarries at Grand Anse, on the Bay Chaleur, some 20 miles east of Bathurst, from which Mr. Bertrand is getting the stone for Contract No. 9, and, as might have been anticipated from Mr. Bertrand's description to you of his dodges for getting the stone cheap, the result is far from satisfactory.

Mr. Holmes says that Bertrand has no quarries of his own, but has contracted with a number of the habitants separately, for certain quantities of stone. These people, in the aggregate, have got out over two thousand c. yds of stone at various points along the coast, extending about 9 miles; the stones are generally large and well shaped, but they are taken
 1260 from the softest part of the rock or wherever there was the least shipping to do, so that they could be got out at the cheapest rate.

Mr. Holmes has brought several specimens of stone from that got out for Mr. Bertrand also from the quarries from which Mr. Jobin got the stone which you saw at Louison river, and from the neighbouring bluffs. There is a marked difference between the stones got out by Mr. Jobin and those which Mr. Bertrand has procured. The former is a strong, pure grit, of a buff colour; the latter is of a bluish tint, like marl, and the grit so fine that it is scarcely perceptible. It is what they use for grindstones, and I have been informed by the Hon. J. Ferguson and others in the neighbourhood, that it cannot stand the weather, and that the large church built at Caraquette, of similar material, is a valuable example.

1270 W. Holmes observed that some large stone that had been got out of the grindstone quarries and piled on each other, and which had apparently been lying there a considerable time, were furrowed in the edges by the rain dropping over.

It is very evident the stone that Mr. Bertrand has procured will not do for bridge work or large culverts, that will be so much covered up with the embankment that but little of them will be exposed.



It is evident that Mr. Bertrand is a man of far too small calibre to carry on a work of this importance satisfactorily, but as long as he is in charge, some means should be taken to compel him to open proper quarries approved by our Inspector, and I think an Inspector should be placed at the quarries to see that the stone is taken from there, and no other place
1280 that has not been approved.

Holmes says they have gone each side of Jobin's quarry, and carefully avoided those bluffs wherever the stone was hard. He also says that the stripping of the best quarries is not large in proportion to the thickness of stone underlying.

Yours most truly,

M. SMITH.

(86)

BATHURST, July 18, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

SIR,—Yours of the 16th inst. was received this a. m. I saw Mr. McDougall on his
1290 way up and stated to him the contents of your letter of 9th inst. He is to talk the matter over with you and let me know the result. I am very anxious to get an office, for till I do so, I cannot start the large profile. I mentioned to you that it was nearly all plotted, but the paper having warped since we ruled in the datum at Dalhousie, it will be necessary to plot it over again. As to the record books, I was not aware that they were required immediately.

Mr. McLaughlin has a portion of the cleared part of his line laid out, and Mr. Dickey all of his—but they both inform me that they cannot lay out the uncleared parts till the timber has been burned, as in many instances the slope stakes would come in the centres of the piles of trees and brush, and even if put in now would all be burned. The office copy of the record books is ready to put the cross sections in, and as soon as I receive the books I
1300 ordered about the beginning of the month, will get them ready also, so that as soon as the timber is burned there will be no delay in finishing them. I have not yet received the lithographed book of plans. Would you send me the sheets you took to Ottawa, shewing the positions of the bridges. The contractor wants a Masonry Inspector to examine the quarry at Bar River.

Your obedt. servant,

(Signed)

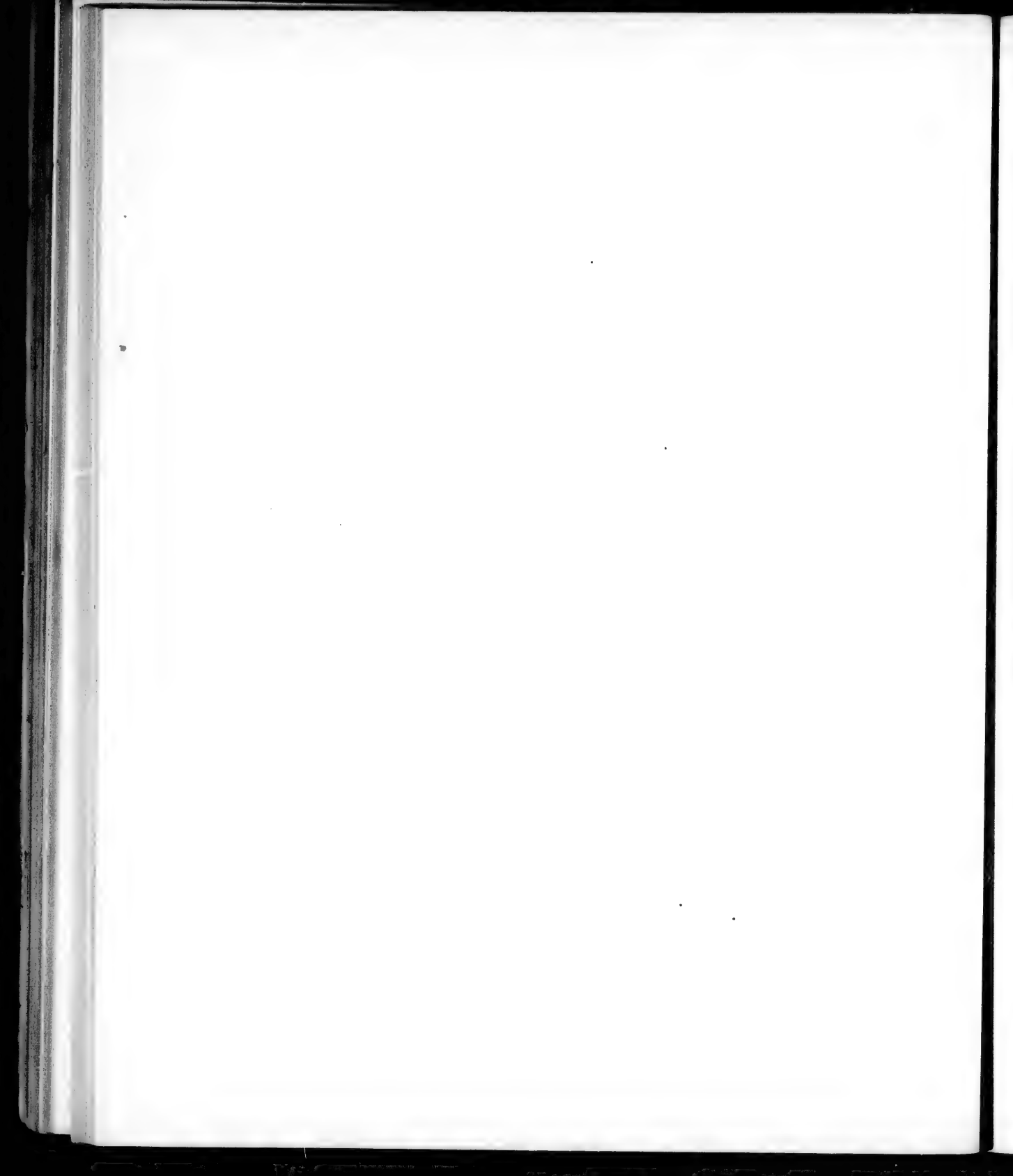
P. A. PETERSON.

(87)

20th July, 1870.

CHAS. ODELL, Esq. :

The bearer, W. Fotheringham, has been appointed an Inspector of Masonry. He says
1310 that as he has a family he would like to be placed on Contract No. 15, but as, in the meantime, there is no masonry being done on that section, he will have to attend wherever the masonry is first commenced, which will probably be on your division; and I think it probable that during the present season there will be so little done that he would attend to both



Sections Nos. 9 and 15. You will, therefore, please advise him where he had best place himself so as to be most convenient to his work, and to receive instructions from yourself and Mr. Peterson. I shall write to the Secretary asking to have his travelling expenses paid as long as he has to superintend the work of two sections. Please show this to Mr. Peterson.

Yours truly,

M. SMITH.

1320 (88)

OTTAWA, 21st July, 1870.

MESSRS. J. B. BERTRAND & Co., Quebec.

GENTLEMEN,—I beg to hand you copy of the contract papers relating to Section No. 15.

Referring to the clause about substitution of iron for wooden bridges, the Council having decided in favor of wooden bridges generally, you will please note, that while the bridge over the Nipissiguit River will be of iron, the specification will be adhered to in the cases of all other bridges on Sections Nos. 9 and 15.

I am gentlemen, your most obedient servant.

(Signed)

C. S. ROSS, Secy.

1330

(89)

(By telegraph from Halifax.)

21st July, 1870.

To M. SMITH :

Letter eighteenth received. No inferior stone will be allowed in the work, more especially when good stone can be had as described.

(Signed)

S. FLEMING.

(90)

MADISCO, 22nd July, 1870.

MARCUS SMITH, Esq.,

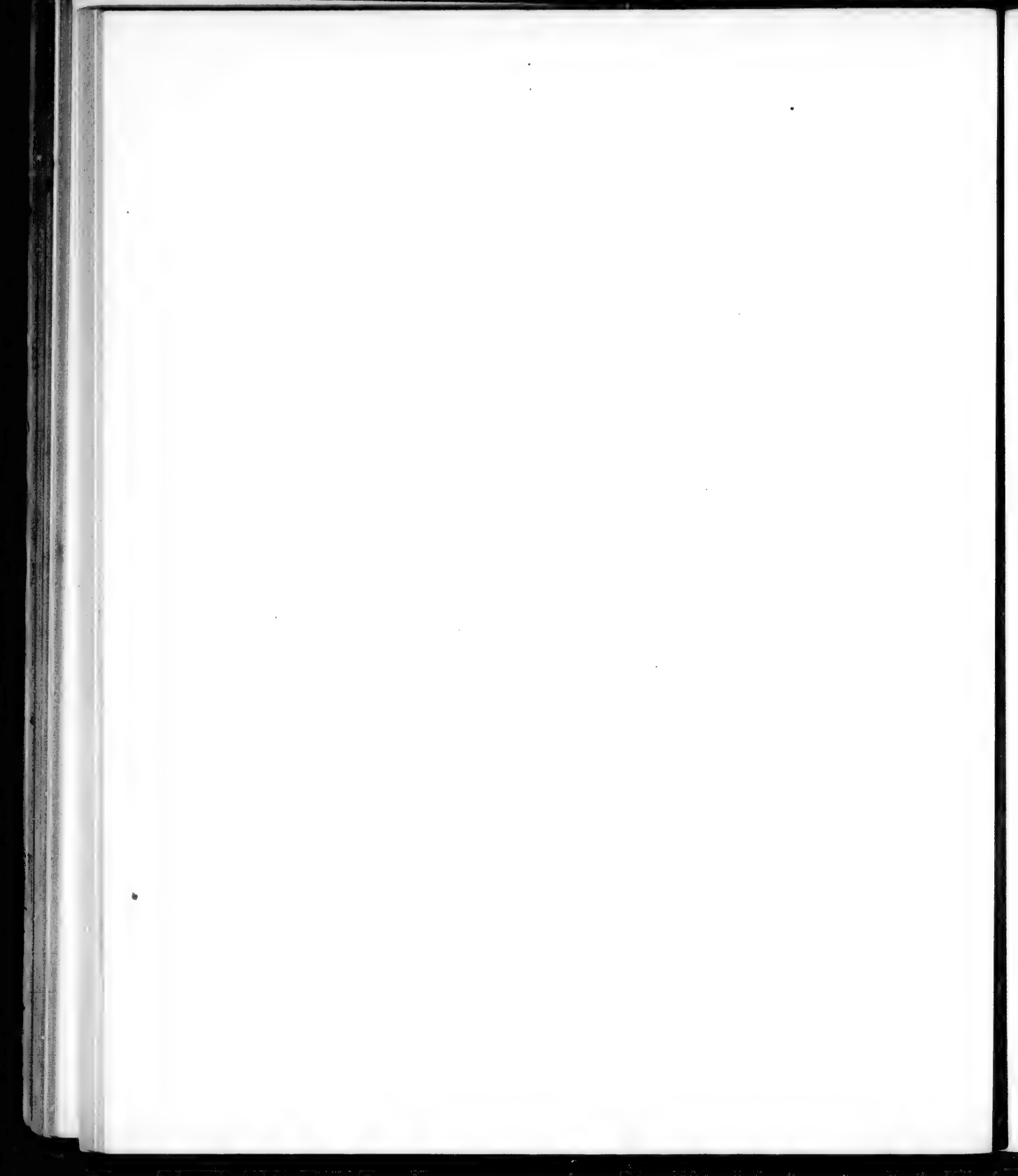
District Engineer, Dalhousie, N. B. :

SIR,—We have opened a quarry at Bass River, where we have actually 20 men working. As they have succeeded in getting out a certain quantity of stone, we would like to have your opinion on it, consequently we beg leave to ask you the favor of sending the Inspector, and inform us of the result.

We remain, Sir, your most obedient servants,

J. B. BERTRAND & CO.

per J. A. Turcotte.



BATHURST, SECTION 15,

July 22nd, 1870.

(91)

P. A. PETERSON, Esq.,

Chief Engineer.

1350 SIR,—We beg to ask you to lay out the cutting, &c., near Station 589; also, the foundation of the first abutment and first pier on the Nipissiguit River.

We are, Sir,

Your most obedient servants,

(Signed),

J. B. BERTRAND & CO.

(92)

BELLEDUNE, 22nd July, 1870.

MARCUS SMITH, Esq.

DEAR SIR,—Will you please inform me whether stone quarried in the Tide, at Grand Anse, by Messrs. Bertrand & Co., are to be permitted in the work, if not, I do not see how it is to be prevented, unless by placing a man down at the quarries to see that none of them are
1360 shipped, as I understand there is a large per centage of them in the Tide-way.

Also, did not Mr. Fleming distinctly state here, in the conversation with Mr. Bertrand, that none of the cement at present on hand was to be used in the work, as it will be necessary for me to adopt some means to prevent it?

I wish you would let me have the list of farm crossings as early as possible, as I am anxious to have them marked out on the ground at once, to prevent any errors or delay.

Yours truly,

(Signed),

CHAS. ODELL.

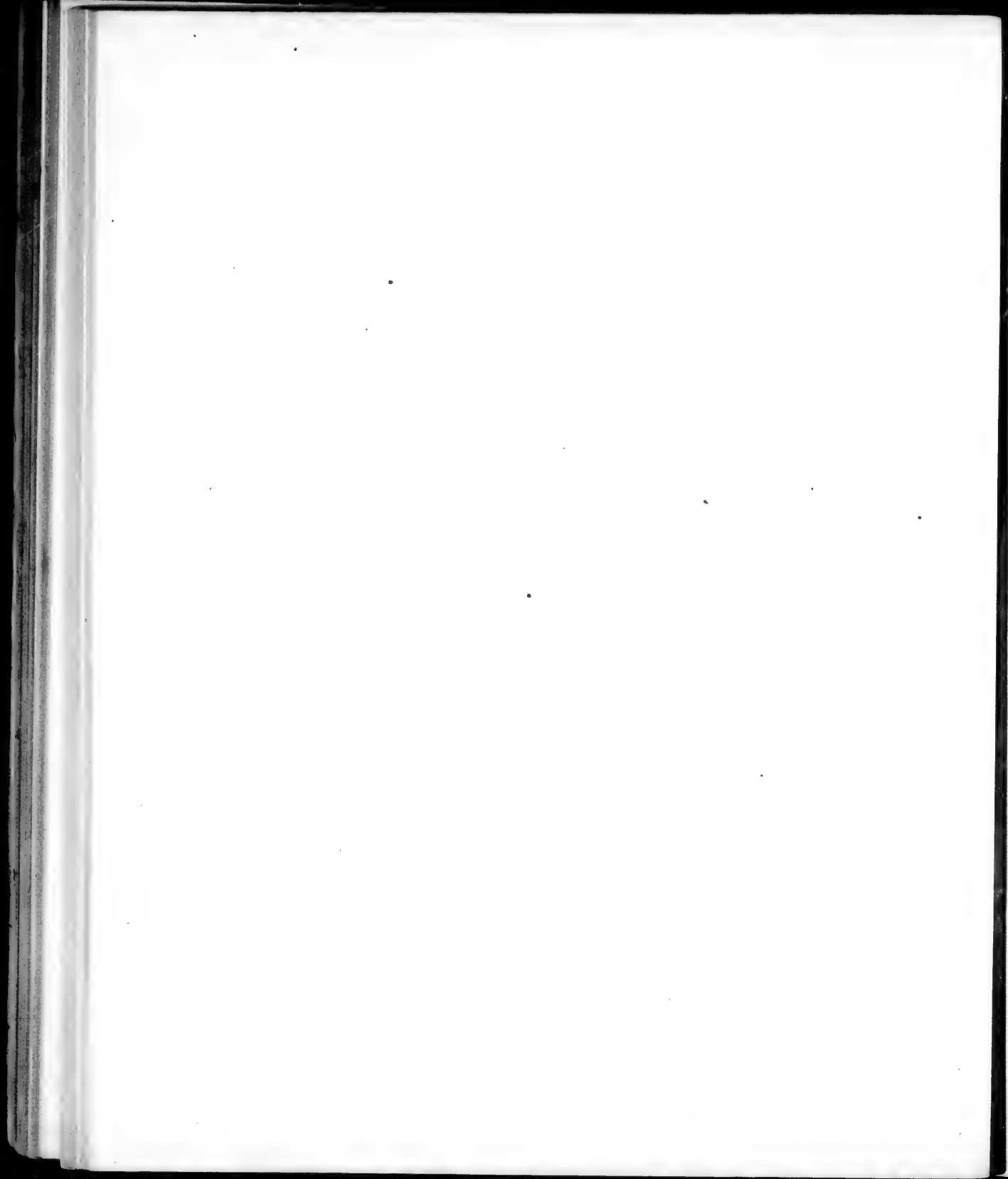
MEMORANDUM WITH REGARD TO TUNNELS.

Tunnels may be formed instead of masonry culvert for the passage of streams, when-
1370 ever the circumstances will allow. The following points are essential.

1. The rock must be sound and of such a character as will stand, on exposure, all climatic influences. In the event of any tunnel being formed in rock of unsuitable character, it must be sheeted with masonry in cement.

2. Care must be taken to place the tunnel so that a thickness of, say 15 to 25 feet at least, according to the diameter of the tunnel, of solid rock be left over it; and a still greater thickness of rock be left between the tunnel and the side of the ravine.

3. Before the line of tunnel is finally determined on, the rock should be laid bare on the surface, or a sufficient number of test pits sunk, to set at rest any question as to irregularities in the rock, and satisfy the Engineer as to the thickness of rock to remain after the
1380 tunnel is driven.



4. Each tunnel must be straight from end to end, and a berm of from 15 to 25 feet according to the height of embankment, must be left between the slope lines and the open cuts at end of tunnel.

5. Any curvature necessary to lead the stream from its old channel to the ends of tunnel must be made in open cuttings.

6. Every tunnel must have a good inclination, and the open cutting at upper end must be about eighteen inches lower than the old bed of stream to insure complete drainage.

(98)

23rd July, 1870.

CHAS. ODELL, Esq., Engineer Division (M).

1390

MY DEAR SIR,—I have received yours of the 22nd inst., relative to the stone at Grand Anse, got out for Messrs. Bertrand & Co.

The following extracts from my letter to the Chief Engineer—founded on Mr. Holmes's report—with the Chief's reply, will be your best guide how to act in the matter:

"Mr. Holmes says that Bertrand has no quarries of his own, but has contracted with a number of habitants separately for certain quantities of stone. These people, in the aggregate, have got out over two thousand cubic yards of stone at various points along the coast, extending about nine miles. The stones are generally larger and well shaped, but are taken from the softest part of the rock, or wherever there was the least stripping to do, so that they could be got out at the cheapest rate."

1400

"Mr. Holmes has brought several specimens of stone from that got out for Mr. Bertrand, also from Mr. Jobin's quarries."

"There is a marked difference between the stone got out by Mr. Jobin and that which Mr. Bertrand has procured. The former is a strong, pure grit, of a buff color; the latter is of a blueish tint, like marl, and the grit is so fine, that it is scarcely perceptible. It is what they get out for grindstones, and I have been informed by the Hon. J. Ferguson and others in the neighborhood that it does not stand the weather, and that the large church built at Caraquette is a notable example. Mr. Holmes observed that some larger stone that had been got out of the grindstone quarries and piled on each other, were furrowed in the edges by the rain dripping over, and were beginning to scale off."

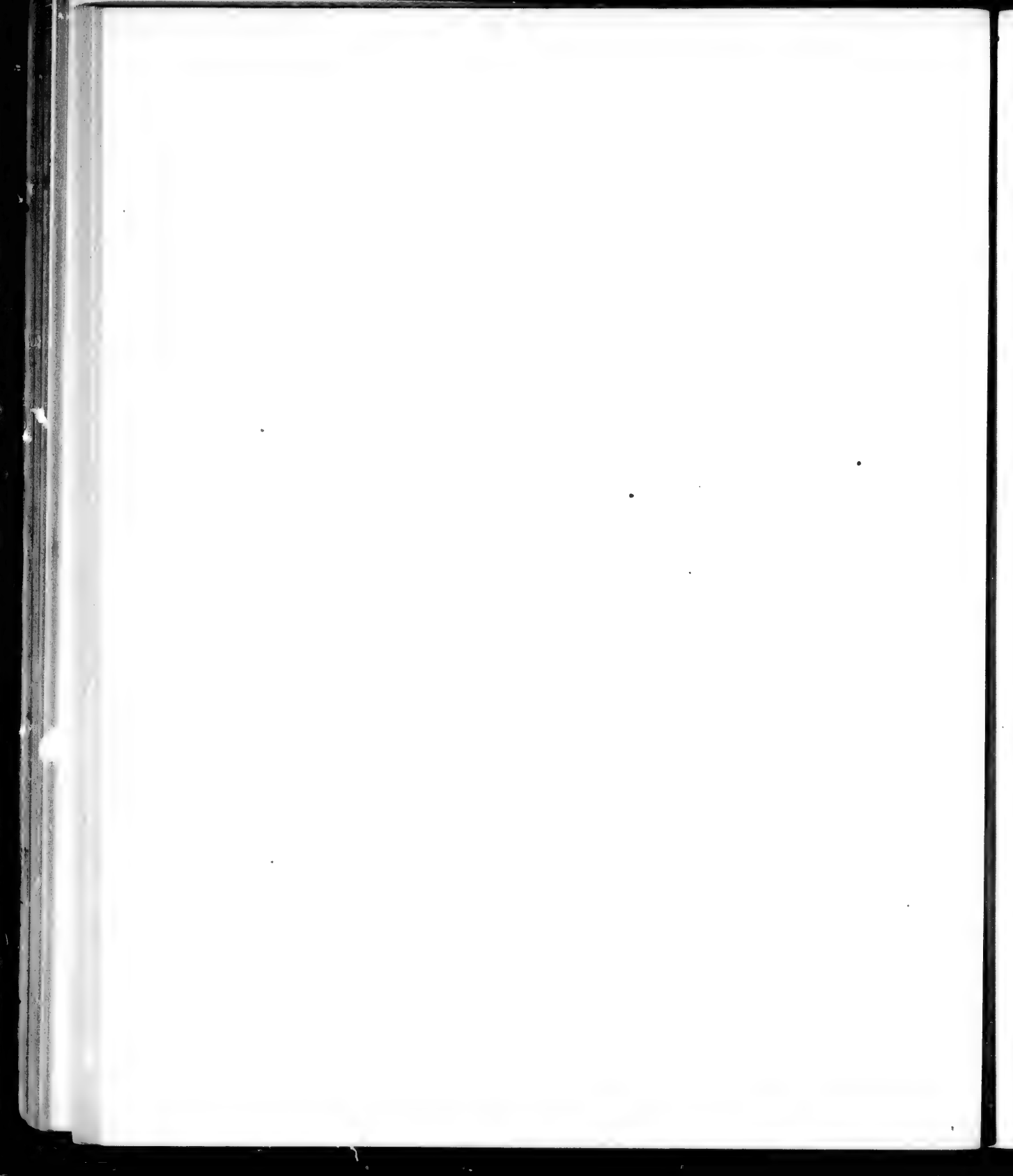
1410

"Mr. Holmes says they have gone east side of Jobin's quarries, and carefully avoided those bluffs where the stone is hard. He also observes that the stripping of the best quarries is not large in proportion to the thickness of the stone underlying."

(The Chief replies by Telegraph.)

"Letter 18 received. No inferior stone will be allowed in the work, more especially when good stone can be had as described."

You will, therefore, please read over this to Mr. Bertrand, and ask him why he did not inform us that he was getting stone from other quarries than those of Mr. Jobin's, which were approved by the Inspector of Masonry. I see no other course now but to examine the stone



as it is brought to the works, and reject that which is unfit. Mr. Bertrand knows very well
 1420 what quarries produce good stone, but if he will persist in getting cheap and inferior stone
 he must abide the consequences. I have no foremen to send to every place where he may
 have people quarrying for him, but I will send you down some specimens of good stone, and
 he must use his own means to get stone equal to it. There is plenty of it to be had if he will
 try for it.

Yours truly,

MARCUS SMITH,

District Engineer.

P. S. I have just had a letter from Messrs. Bertrand & Co., which states that they
 have 20 men working at a quarry at Bags River, and wants us to send our inspector to look at
 1430 it. Let them send specimens of the stone here for examination.

M. S.

(94)

BATHURST, July 28, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

SIR,—I visited the Bass River Quarry to-day with Mr. Fotheringham, the Inspector
 of Masonry, and now send you four specimens of the stone. The dark piece (No. 1) is a
 portion of the rock found mixed with the grey, and I think when it has been exposed a
 couple of weeks or so it will become grey like the rest of the stone. Some stones that were
 1440 quite mottled last Thursday, are now, from exposure to the sun, of the same tint.

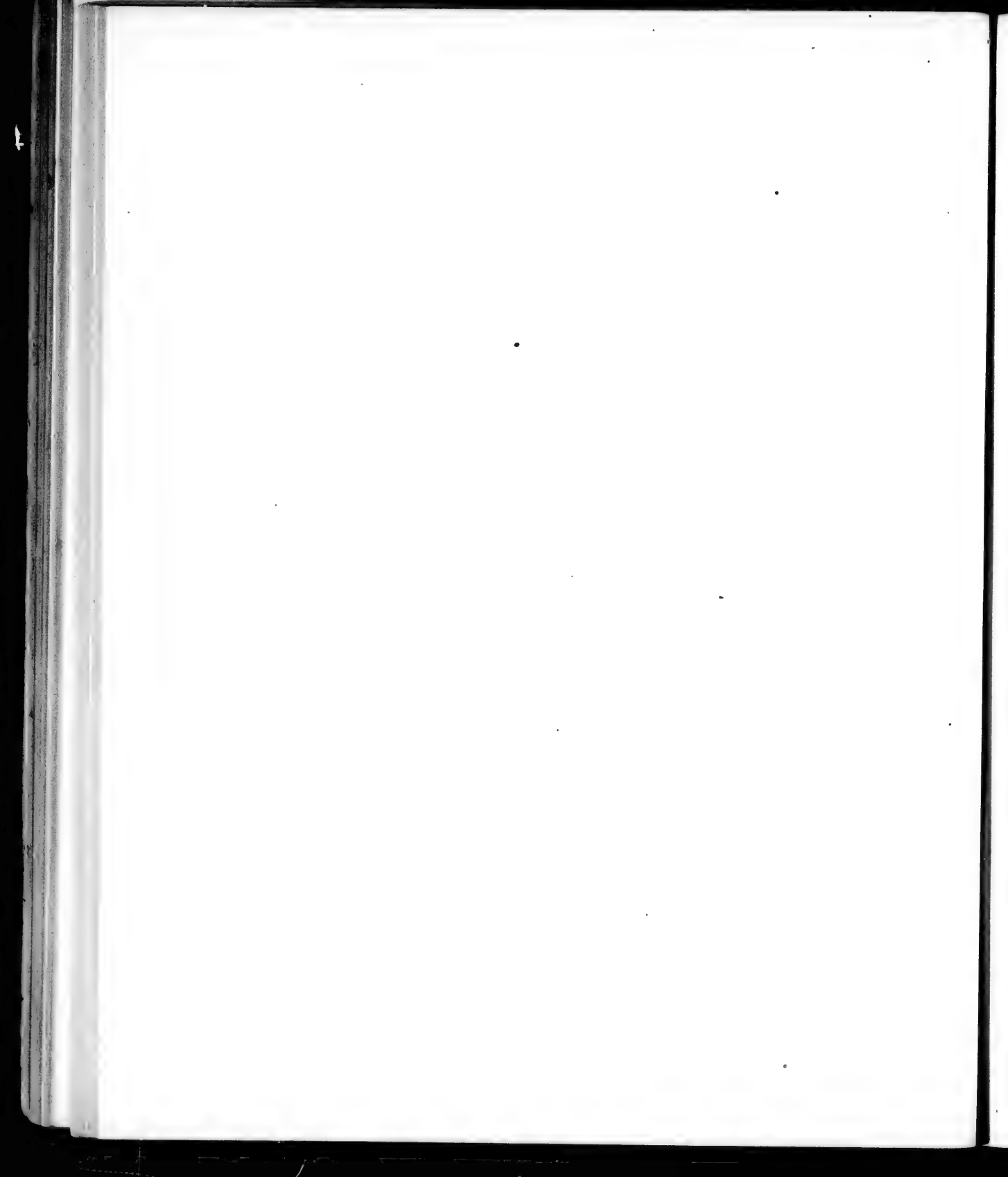
No. 2 is a chip hammered off from an exposed face. Nos. 3 and 4 show about the
 average quality of the stone. The Inspector considers it a good, strong stone, and suitable
 for first-class masonry. It can be got out in blocks of almost any size.

The quarry is about five miles from the town and about seven from the Tete-a-gouche
 bridge, but in the winter, by driving across the harbour, the distance will be shortened
 considerably.

The contractor commenced the cut at the Nipissiguit River this morning. The
 amount to be borrowed to make up the embankment between 589 and 600 + 60 is 15,572
 yds. I propose to widen the cut back to 584 + 60 to 40' base. This will give me 8,816 c.
 1450 yds., leaving 7,256 c. yds. to be made up from ditches in cut and from a side embankment.
 Would you let me know if you wish any char from this.

The contractor has asked me to stake out the west abutment and pier of the Nipis-
 siguit Bridge, so that he can make his road from the quarry to the bridge in the right place,
 and I believe he wishes to excavate the foundations.

I have given him 600 + 60 as about the front of the abutment, but I have nothing
 here to show its exact position or its size.



The books of lithographed plans have not yet been received.

Only one chainman has reported as yet.

I have no blanks for estimates.

1460

Yours respectfully,

(Signed)

P. ALEX. PETERSON.

(95)

26th July, 1870.

P. A. PETERSON, Esq.,

Engineer, Division N. :

DEAR SIR,—I have received your letter of the 23rd inst. ; also the specimens of stone from the Bass River Quarry. These are more promising than any that the contractor has hitherto procured, but the quarry must be further opened up before I can judge whether the stone will do for first-class masonry.

- The grit appears very pure and strong, and I have no doubt the stone will stand a heavy crushing force; but as the grain is very open I doubt whether it will stand much tensile strain, and at present I shall hesitate to say that it would do for such high bridges as those at the Tête-a-Gauche and Nipissiguit, as I fear, in the setting of the masonry, the stretchers or bonding stones might break asunder, as I have seen similar stone do so. However, let them give the stone a fair chance by quarrying it properly, using as little powder as possible, and I shall come down and see it after they have got out a quantity, I think there is no doubt it will do for second-class work, and probably for first-class, except the two bridges mentioned above. The face of the west abutments, Nipissiguit, will be about the place you named, viz. : 600 (54 + 60), but I cannot find the schedules that were registered here with the profiles. The general (lithographed) plans have not yet come down from Ottawa. You will please
- 1470 measure up at once and send quantities not later than Monday. I shall make out the first certificate myself and send you a copy, with some blank forms.
- 1480

In measuring clearing, you will note the quantities of timber cut down only, and not piled or burnt, and estimate at about one-half. Other portions, if any, cut down and partially burnt at what proportion of completeness you may judge correct ; so that I may be able to return the whole thing in one item as equal to so many acres of clearing complete.

Yours truly,

M. SMITH,

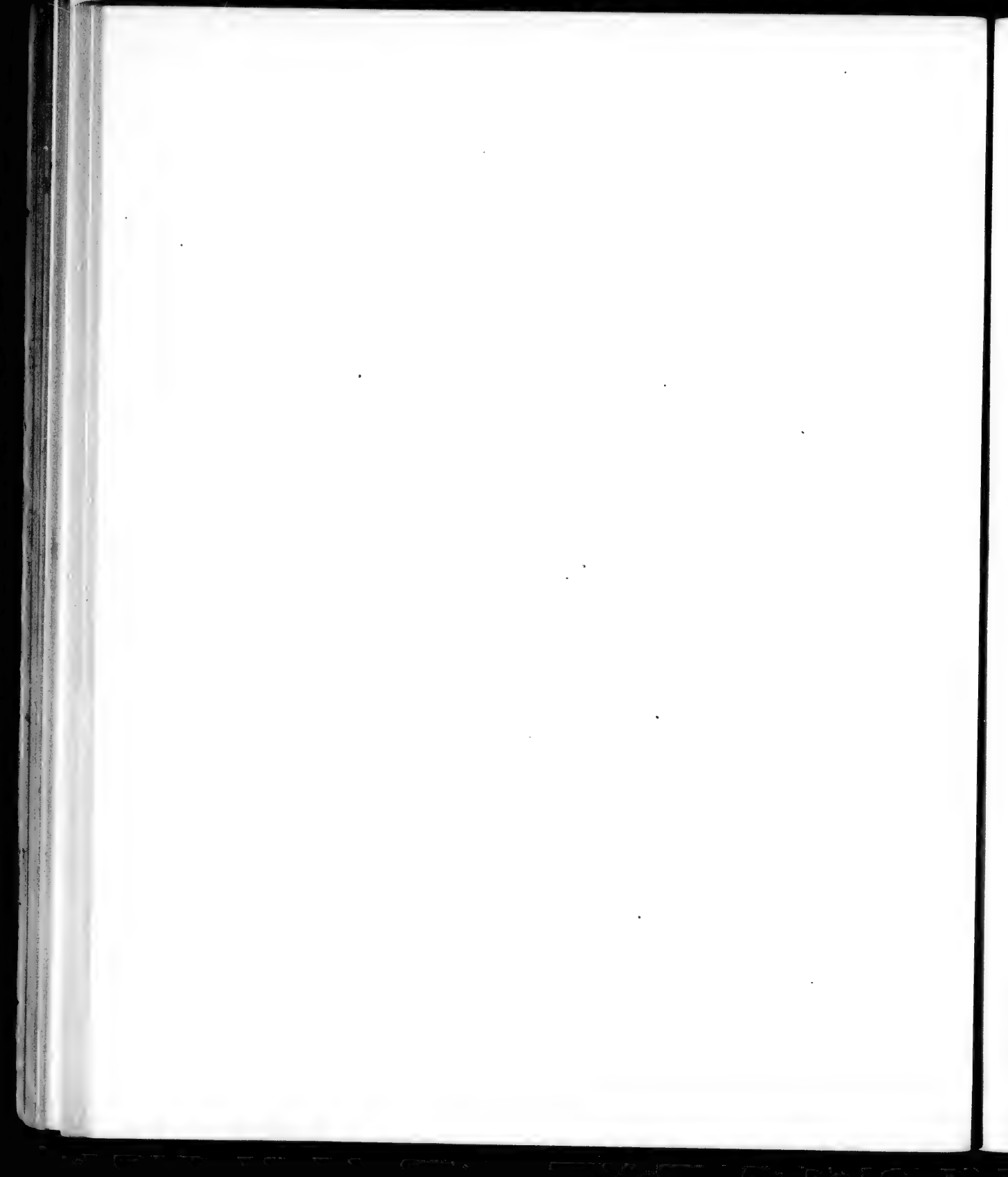
District Engineer.

(96)

27th July.

1490 CHARLES ODELL, Esq., Engineer, Division (M.)

MY DEAR SIR,—You will please measure up the work done at once, and send in certificate *not later* than Monday next. You will have to make considerable reduction in the quantity of fencing, as all that is done will have to be taken down and re-erected. I think if



you estimate the fencing done as only half finished, it will not be far out; but I wish you would find out what the timber costs, delivered on the ground, and what the sub-contractors had for erecting the fence. This, by reduction to the rates in the approximate estimate, would be some guide to us in apportioning the rates for materials and workmanship in future certificates. I herewith send you a copy of a new "Approximate Estimate," made out by the Chief Engineer on the 7th inst. You will please use this in making out your present
 1500 certificate. It will probably bring the total somewhat less than the former rates would yield, so that you will have to reduce the quantity of work done this last month till the amount, added to that of last certificate, will agree with the total amount by the new rates.

Yours truly,

M. SMITH,

District Engineer.

P. S.—All the cement is condemned, and the Contractors are sending it back.

(97)

BELLEDUNE, 27th July, 1870.

MARCUS SMITH, Esq.,

District Engineer.

1510

MY DEAR SIR,—I gave Mr. Fotheringham directions to try the new cement that came for the contractors last week. There were two different brands. He set some on Friday noon last, and yesterday afternoon I examined it and have condemned it as being useless.

Your letter of the 23rd, relating to stone, duly received, and I read the contents over to Mr. Bertrand yesterday, and he says he will attend to it. Will you please let me have the list of farm crossings I asked for in my last.

Yours truly,

(Signed)

CHARLES ODELL,

Engineer Division M.

(98)

QUEBEC, 28th July, 1870.

1520 To C. S. Ross, Esq.,

Secretary Intercolonial Railway Commissioners,

Ottawa.

SIR,—I beg to acknowledge receipt of your letter of the 21st inst, enclosing a copy of contract papers relating to Section 15, and also the information that the Council had decided in favor of wooden bridges on all the rivers of the Sections No. 9 and 15, except that of the Nipissiguit, which is to be made of iron.

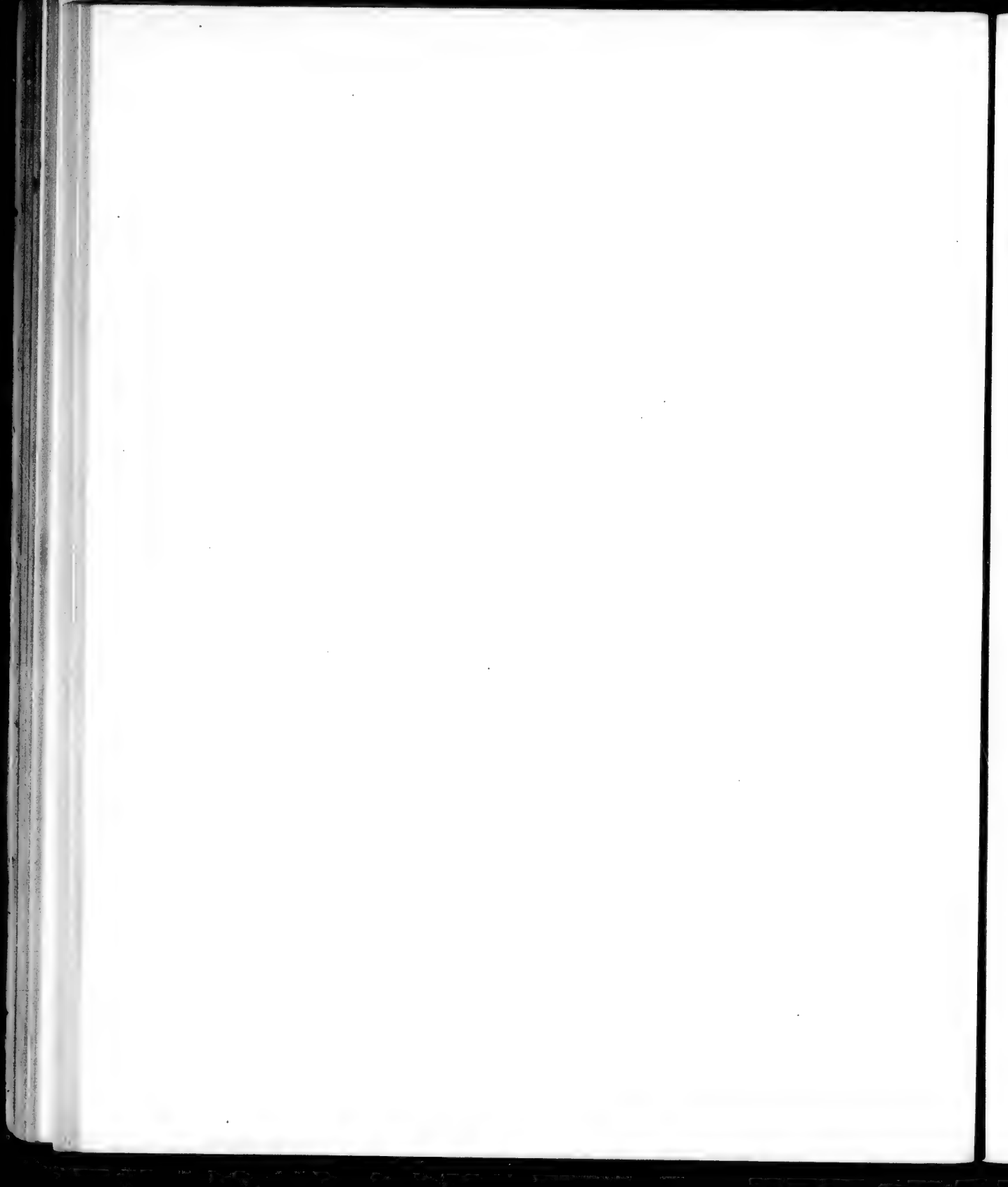
In reply, I beg to inform you that the above resolution was transmitted to Messrs. Bertrand & Co., and that it will receive their immediate and respectful attention.

I remain, Sir,

Your most obedient servant,

1530

W. E. BLUMHART.



(99)

28th July, 1870.

C. ODELL, Esq.,

Engineer Division M.

MY DEAR SIR,—Herewith I send you a list of level crossings as nearly as I can make it out in the office from plans and profiles.

There may be alterations by agreement with land owners. I have made one crossing do for two parties wherever practicable. In these cases I have given the exact station at the crossing of the boundary line as given by the surveyors, and have written the names of 1540 the owners on each side. Where there is a single crossing, I have given the station at the crossing of the boundary line each side of the lot.

I have thought that, in order to save so many crossings required for these narrow farms, a road could be made on each side of the railway (on Government ground to the public road) to serve a group of farms. In some cases a road on each side of the railway could be made right through from one public road to another, and have say, one or two intermediate crossings *common to all*. The inclination of farm crossings to be 1 in 12. Public roads not greater than 1 in 20 *over present inclination*.

Yours truly,

M. SMITH,

District Engineer.

1550

(100)

BATHURST, August 1st, 1876.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

DEAR SIR,—

* * * * *

You will see by my diary extract that the *Contractor quit work on the Bass River Quarry last Friday*. The inside stone was very soft, and broke up into beds of about three inches in thickness. He quit of his own account, so the stone must be very bad indeed.

1560

Yours truly,

P. ALEX PETERSON.

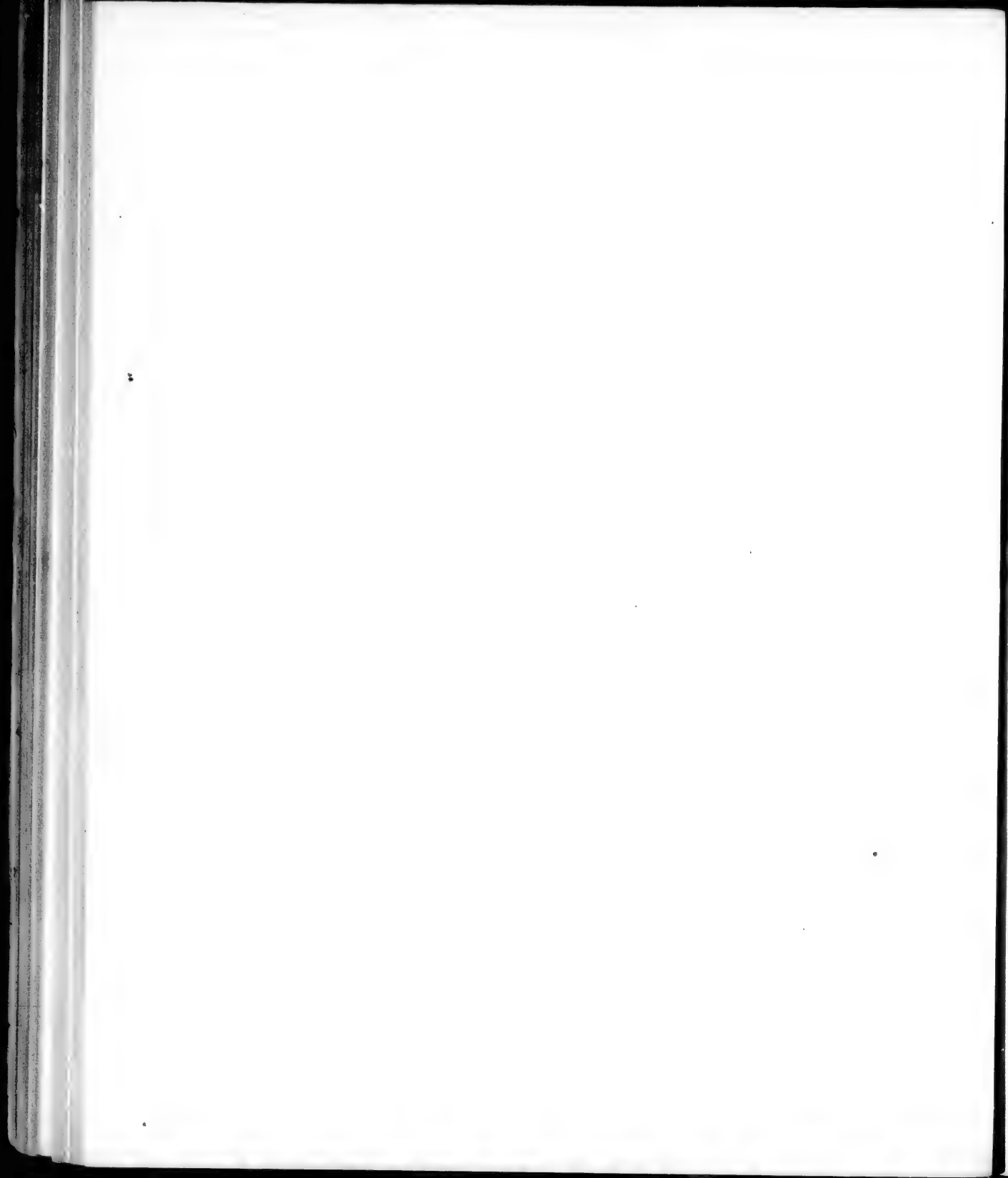
(101)

BATHURST, Sec. 15, 1st Aug., 1870.

P. A. PETERSON, Esq.,

C. Engineer :

SIR,—We beg most respectfully to ask of you to give us the plan of masonry for bridge at big Nipissiguit River.



As we cannot continue to quarry the stone for that place without the plan, we trust you may be pleased to favour our request at your earliest convenience.

Your most obedient servant,

1570

(Signed)

J. B. BERTRAND & Co.

(102)

BATHURST, Aug. 2nd, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

DEAR SIR,—I enclose copy of letter from Bertrand & Co., in which they ask for memorandum of masonry of Nipissiguit Bridge. I saw them this morning, and told them the specification was sufficient to quarry by, but I would ask for plan for them.

Yours very truly,

(Signed)

P. ALEX PETERSON.

1580

(108)

DALHOUSIE, 8rd August, 1870.

To SANDFORD FLEMING,

Halifax.

Contractors No. 15 want plan of Nipissiguit Bridge, as superstructure is now to be iron. Will plan of masonry be according to sheets 12 and 13, general drawings, or will you have special plans made.

(Signed)

M. SMITH.

(104)

DALHOUSIE, 8rd August.

P. A. PETERSON, Esq.,

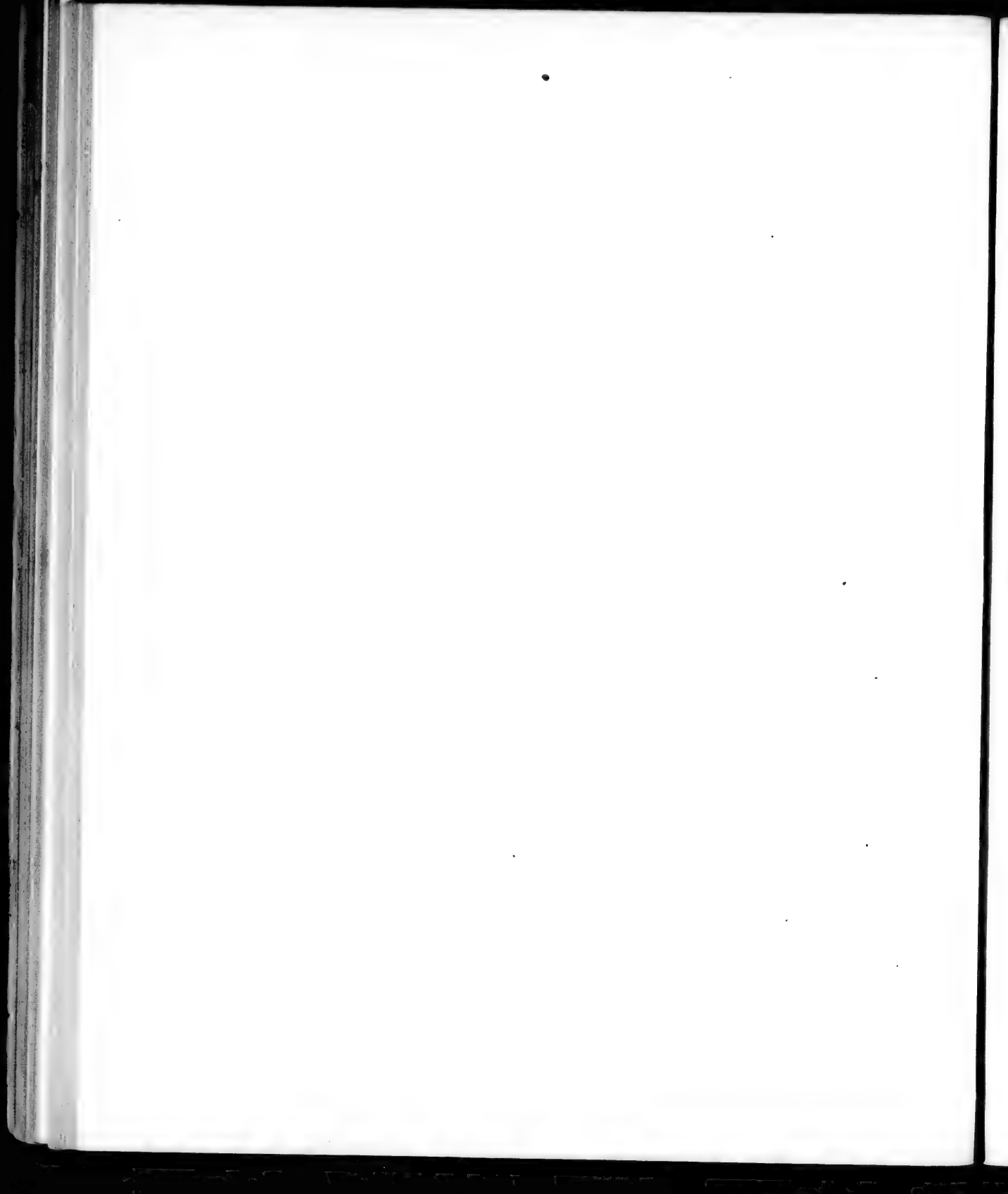
Engineer, Division N.

1590

DEAR SIR,—As the Nipissiguit River Bridge is to have a superstructure of iron, there will have to be a special plan made for it, as none of the general drawings will exactly apply, so I have written to the Chief for a plan.

In the meantime, the general drawings, sheets Nos. 12 and 13 (which were drawn for iron), will be quite sufficient for the Contractor to get out stone by. You might make a drawing of the west abutment and one pier from these drawings (quite rough and plain, simply to get out stone by). The face of the abutment will be at Station 600 to 60; the foundations about 45 feet below formation level; bridge seat, 9 feet below formation level. The cutwater to the piers will be the same as in sheet No. 19. If you have not got that sheet, it is very similar to the cutwater in sheet No. 15, only on the former (19), there is a short cutwater at the lower side of the pier.

1600



The complete sets of general drawings have not come down yet, but I have sent you an additional book, with standard dimensions for bridges and culverts. This, with what you have already, will do you until the others come down.

Yours truly,

M. SMITH.

(105)

BATHURST, Aug. 4th, 1870.

P. A. PETERSON,

C. Engineer :

SIR,—Might we ask you whether it would not be as well to divert the stream at or near
1610 Station 471 to the next stream at 475, thereby saving one culvert.

Hoping you may take the matter into consideration, and, if agreeable, please let us know.

We remain, Sir, your most obedient servants,

(Signed.)

J. B. BERTRAND & CO.

(106)

BATHURST, Aug 4th, 1870.

P. A. PETERSON, Esq.,

C. Engineer :

SIR,—Would you please to give us the plan of masonry at the bridge at Little River.

Also the approximate quantities of earth, rock, masonry, fencing, and other works
1620 to be done on Section 15. Also please inform us if we can burn off the wood on different parts of the clearing, so that we can open up new works, as many men are now waiting for employment.

Hoping that you may be pleased to favor us with a reply at your earliest convenience, we remain

Your most obedient servants

(Signed,)

J. B. BERTRAND & CO.

(107)

BATHURST, August 5th, 1870.

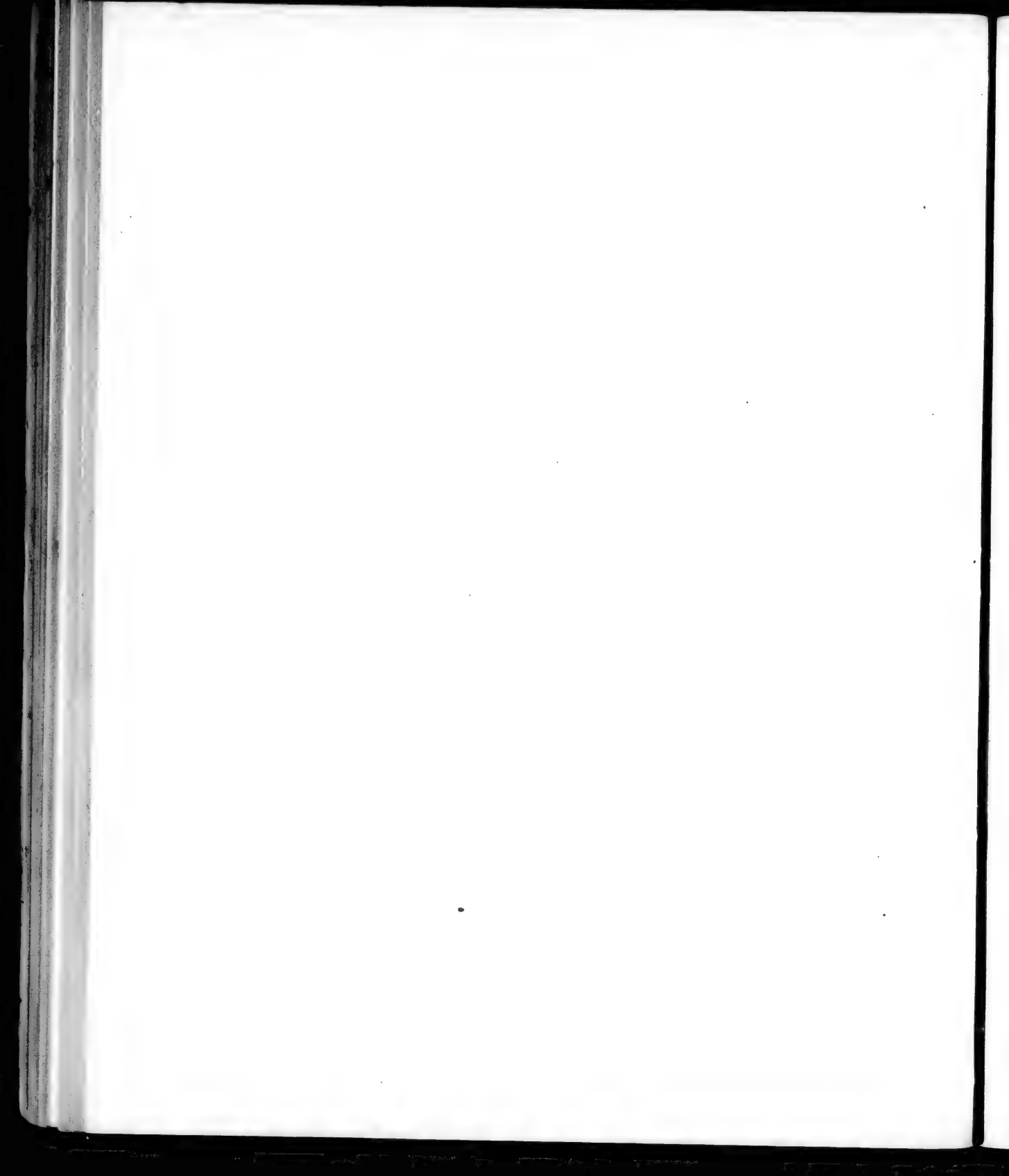
MARCUS SMITH, Esq.,

District Engineer,

1630

Dalhousie.

DEAR SIR,—Yours of the 3rd instant was received yesterday. I have made a drawing of the cross section and plan on sheet No. 13, and sent it to the contractor, and referred him to the general drawings on sheets Nos. 12 and 18. I have not sheet No. 19, but will make a drawing of a pier and cut-water from sheets Nos. 12 and 15.



I received two letters from the contractors last evening. In one, he asks to be allowed to divert the stream at 471 to 475, and in the other, he asks for the plan of masonry of *Little River Bridge*.

For the quantities of earth, rock, masonry, fencing, &c., &c., in No. 15, he also adds :
 1640 "Please inform us if we can burn off the wood in different parts of the clearing, so that we
 " may open up new works, as many men are waiting for employment."

I have replied that I could hold out no prospect of diverting the stream at 471, and that I would refer the matter to the District Engineer; that I would apply to the District office for quantities and plan of *Little River Bridge*.

With reference to the clearing, I informed them they were well aware I have no control over the burning off of the timber, and that they knew they could burn at any time, and were responsible at all times for any damage done, and that there were many cleared portions of the line laid out and ready to commence work upon.

The culvert at 471 will require to be enlarged, instead of being done away with. I telegraphed this to the Chief last spring, when I sent him the quantities. What size has he
 1650 decided to make it ?

When do you intend to come down.

Yours truly,

P. ALEX PETERSON.

(108)

BATHURST, August 8th, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie.

DEAR SIR,—I enclose diary extracts for week ending August 6th.

The contractor is taking out many of the stones for the Nipissiguit Bridge, two feet in thickness. They must by clause 44 of the specification have a breadth of at least three
 1660 feet. How will the backing be arranged in this case in a four foot wall.

Yours very truly,

(Signed),

P. ALEX PETERSON.

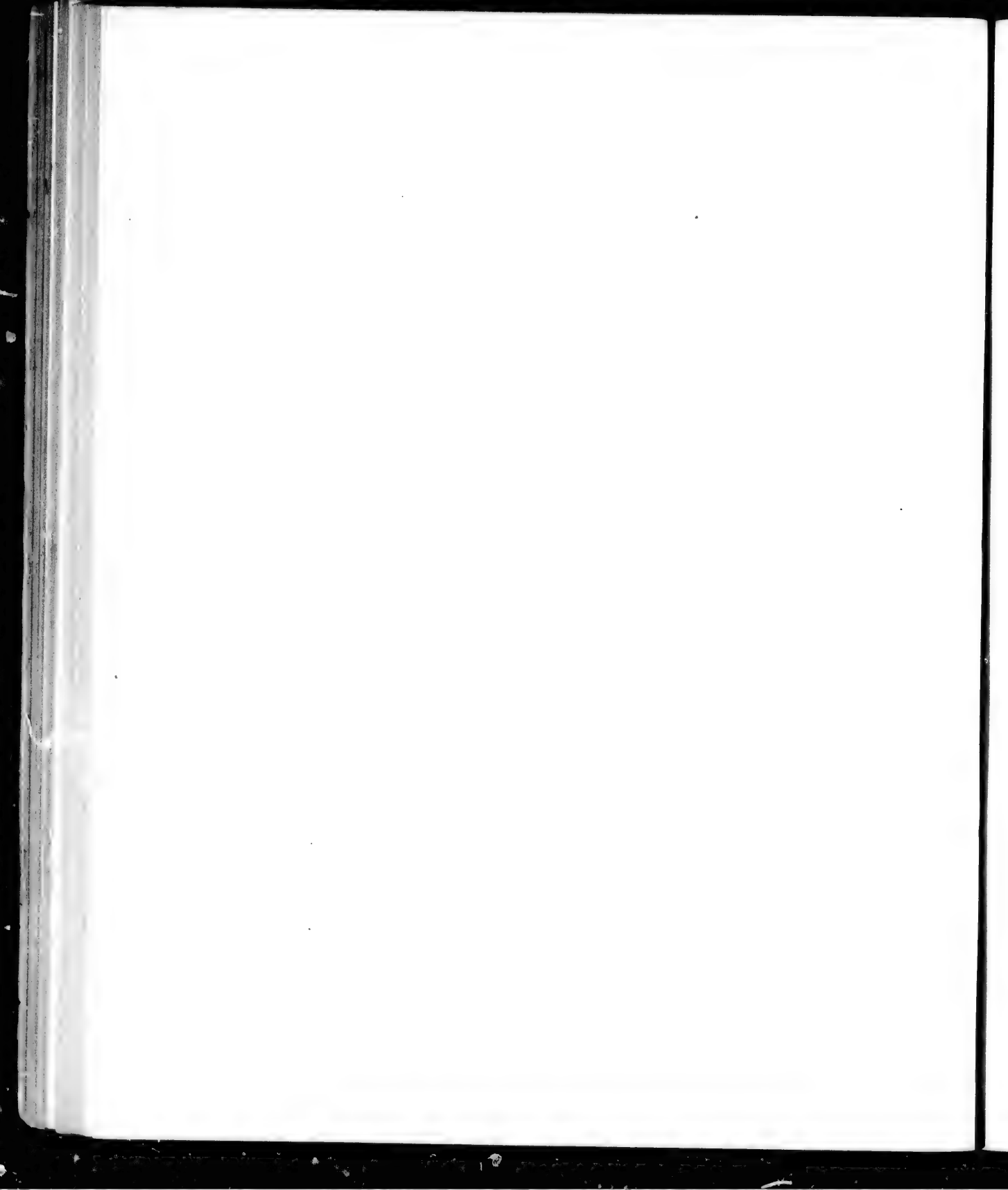
(109)

DALHOUSIE, 8th Aug., 1870.

P. A. PETERSON, Esq.,

Engineer Division M.

I have received your letter of the 5th inst. As soon as you are on the ground you will be better able to decide whether the stream can be diverted from Station 471 to 475 than I can here. But you must take care that in any diversions of streams you must not destroy or take away any water rights, whether for simply watering cattle, or for irrigation,
 1670 or any other purpose.



If you will look at the schedule, you will see that the plan of masonry of Little River Bridge is to be drawn according to Sheet No. 20, General Drawings. You will have to make all such plans yourself, as I have no draughtsmen allowed me to make them; but send each plan to me for approval. The contractor, however, cannot want a plan now, as I presume he has a copy of the general drawings, which are quite sufficient for him to get out stone by. In all cases make the drawings very plain, without colour or shading more than is necessary to show the parts *in section*, which are to be shown by red colour or by diagonal lines.

The quantities are in the schedule.

Yours truly,

M. SMITH.

1680

BATHURST, Aug. 9, 1870.

(110)

MARCUS SMITH, Esq.,

District Engineer,
Dalhousie.

DEAR SIR,—

* * * * *

I have just seen Mr. Bertrand and informed him that the Little River Bridge will be made after the general drawing on Sheet No. 20. He says he has all the drawings, and 1690 asked for plans in case any change was to be made.

* * * * *

Yours most truly,

(Signed)

P. ALEX PETERSON.

(Contract No. 9.)

Memo of total quantity of work executed to the end of July, 1870 :

Clearing and close cutting.....	200 acres.
* Fencing	9000 feet.
Rock excavation.....	5,656 c. yds.
Earth.....	60,600 "
Stone delivered on works.....	169 "

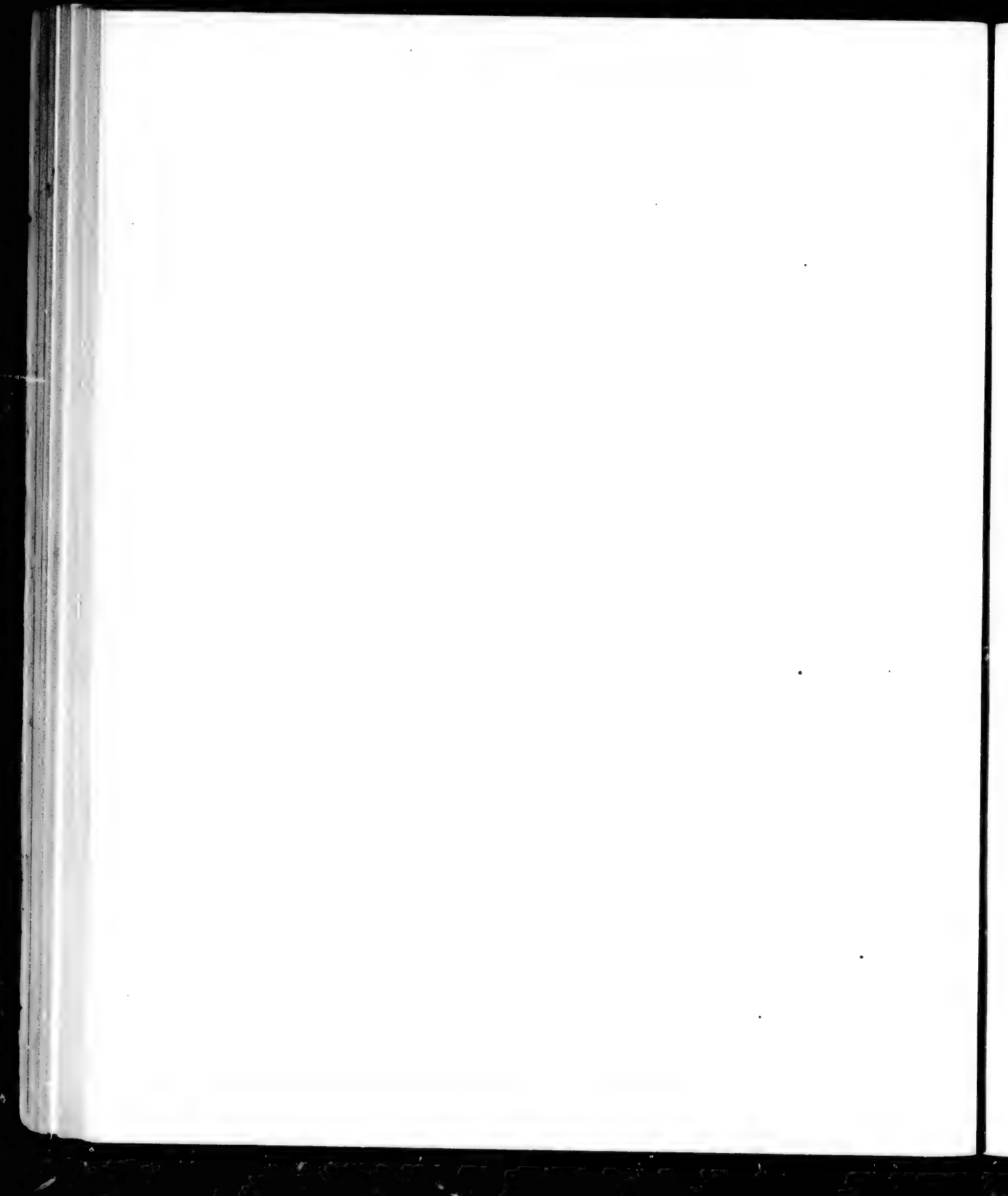
* One half of this only returned, on account of a great part of it having to be taken down and rebuilt.

(111)

DALHOUSIE, 10th August, 1870.

C. ODELL, Esq. :

MY DEAR SIR,—A small cargo of cement came down from Quebec (as I am informed), some three weeks ago. This was so much better than what we had previously tested, that I am allowing the contractors to use it for a box culvert on contract No. 8.



- 1710 The contractors allege that a portion of the same cargo was sent down to No. 9, and that you have condemned it, and they are going to complain to the Commissioners that we condemn cement at one place that we allow to be used at another. Will you please report to me the facts, when and where the cement was delivered which you tested and found useless; and whether there has been any cement delivered at the works or at the contractors' stores since you tested the other, and if so, whether you have tested it.

Yours truly,

M. SMITH.

(112)

DALHOUSIE, 11th August, 1870.

P. A. PETERSON, Esq.,

Engineer, Division N.

- 1720 MY DEAR SIR,—I have your note of the 8th inst., in which you say that contractor is getting out stone for the Nipissiguit Bridge, two feet thick.

Specification says, "Headers will have a length in wall of not less than 24 inches, and run back from the face two-and-a-half times their thickness."

This will, of course, be so modified, that the headers will not run beyond the thickness of the wall.

Stretchers to be at least 2 ft. 6 in. long, and run back one-and-a-half times their thickness. According to this, a stone 2 feet thick would run back 3 feet, and have only one foot at the back, which is too small, and not profitable to the contractor, although according to specification. This may be made up of two courses.

- 1730 I think the best and cheapest way would be to get the stones out so as to build something like a brick wall (I speak of the abutments)—say first a course of headers covered by a course of stretchers, thus:—

(Sketch).

There would, in this plan, be the greatest simplicity, as all the headers would be 2 ft. 6 in. by 4 ft., and all the stretchers 2 ft. 6 in. by 2 ft., except the quoins, one of which would be 3 ft. 9 in. by 2 ft., and the others would be some other lengths, according to the width of the abutment, and on coming opposite the cross walls, the stretcher would have to be 2 ft. 6 in. by 4 ft. instead of 2 ft. 6 in. by 2 feet., so as to bond the cross wall with the face walls, as shown in red near the centre.

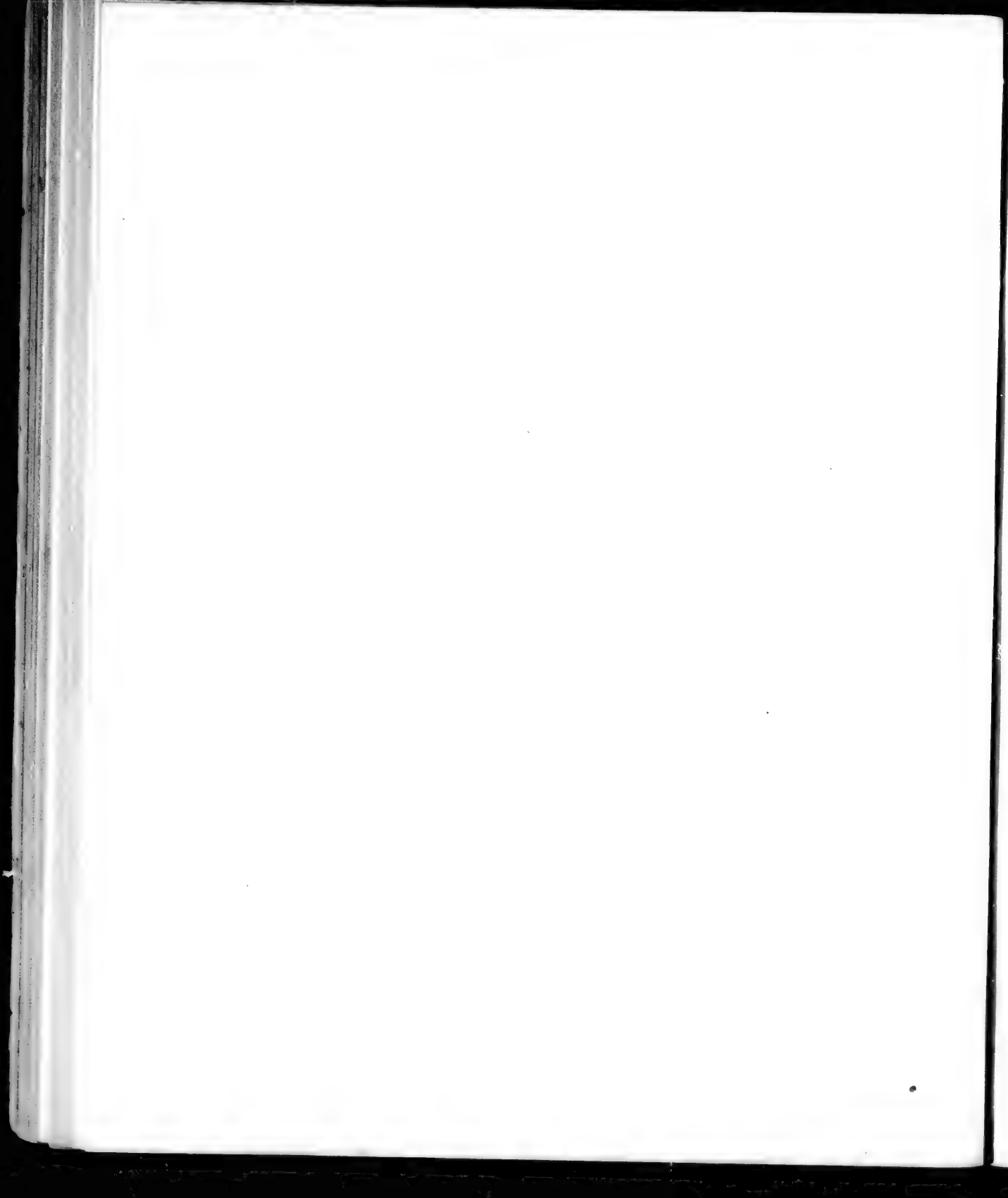
- 1740 The piers would use up all the stone that came out different sizes from the above. Show this to the contractor.

Yours truly,

M. SMITH,

District Engineer.

P. S.—If all the stones were got out 2 ft. 6 in. by 4 ft. it would be still more economical, as there would be fewer vertical joints to cut. Nothing but the face would have



to be squared, and the back might be left quite rough. Of course, the quoins in every alternate course would not be the above size, but one of them would be 3 ft. 9 in. by 2 ft., as shown on sketch, the other some other size. The stone opposite the cross wall would also
 1750 have to be at least 10 inches shorter, so as to bond those walls to the face walls, thus :—

(Sketch).

But these are so few as compared with the mass, they could soon be got out separately.

M. S.

(118)

BELLEDUNE, 12th August, 1870.

MARCUS SMITH, Esq.,

MY DEAR SIR,—In reply to your letter of yesterday, I have to state that the cement which I had tested and condemned was landed at the Elmtree River about the 18th of July, and the contractors delivered some of it on the line at 786.50, where a 6 ft. arch is required.

The contractors also tested this cement, and have since re-shipped a portion of it for
 1760 Quebec. On Wednesday, the 3rd August, the contractors' foreman told the Masonry Inspector, Mr. Fotheringham, that some new cement had arrived, and asked him to inspect it. I told the Inspector the same day to do so. He went up, and found that it had not been landed.

On Monday 8th, the Inspector informed me that there were only six barrels in all. I then said it was hardly worth while inspecting such a small quantity unless the contractor particularly wished it.

On the 9th, Mr. Bertrand told the Inspector that he had six barrels of cement, and wished him to test it, which he agreed to do yesterday morning. He set two boxes 1 to 1 and 2 to 1, and placed them in the river, where I told him to let them remain for two or
 1770 three days.

Mr. Bertrand's foreman told me this morning that he had tested this last lot himself, and found it just the same as the other. I got him to show it to me, and have put up some for your inspection. It was mixed and placed in the river on Friday last, where it remained until to-day, being just a week. The brand of the cement is Gauvreau's—same as the former.

These are all the facts in relation to the cement that has arrived since Mr. Fleming condemned the first lot.

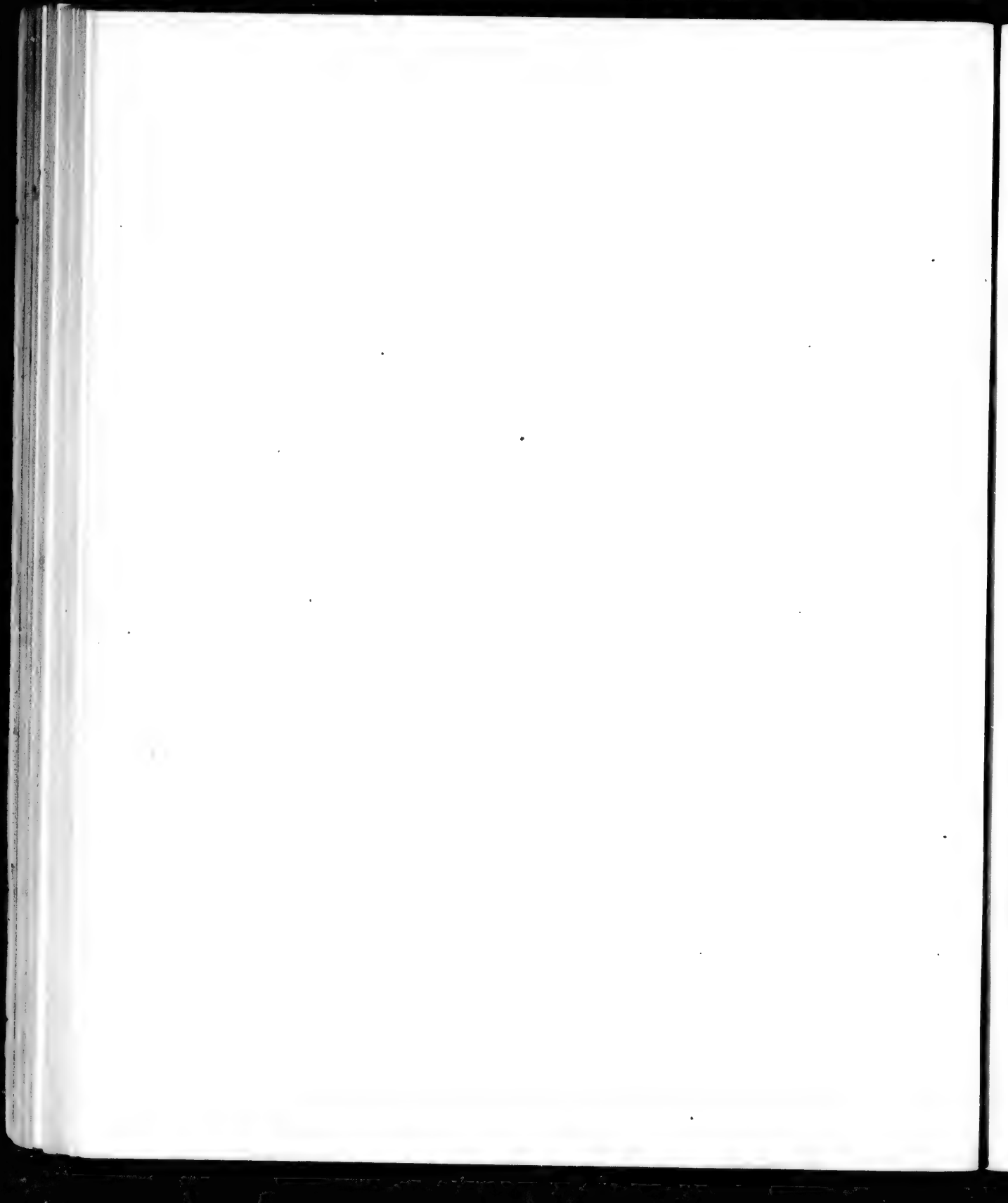
Yours truly,

(Signed)

CHARLES ODELL,

Engineer Division M.

1780



(114)

BATHURST, N.B., August 15th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

MY DEAR SIR,—I enclose diary extracts for week ending August 18th.

I received yours of the 11th inst. on Saturday, and made its contents known to foreman of quarry in absence of contractor. Some stone cutters used to working granite have been engaged by contractor, and commence work to-morrow.

Yours very truly,

1790

(Signed)

P. A. PETERSON.

(115)

16th Aug., 1870.

C. ODELL, Esq.,

Engineer, Division M. :

MY DEAR SIR,—I have received the samples of cement, Saturday, 29th July last, which are certainly not at all promising. The contractor is here now, and says that his foreman has tried some at Bathurst which appears very fair and fit to be used. There may be some difference in the sand. I can only say that if he can get some cement mixed by his own men that is tolerably good, even if not the best, and that will set well and hard on dry ground, you will permit them to go on with that culvert, Station 787, so as to give them no excuse to say
1800 that we have delayed the masonry unnecessarily, and the more especially as the contractors now seem really willing to do what is right. Bertrand says he hears there is Portland cement to be had at Halifax, and has sent for all he can get there, and will also send to England for a large supply for the spring. He has promised not to get out any more blue (grindstone) stone at Grand Anse, so I have consented to allow him to use what he has got in the proper place, that is, hearting and backing of culverts, but not to exceed 20 per cent. of the whole. I shall be down next week towards the end.

Yours truly,

(Signed)

M. SMITH,

District Engineer.

1810

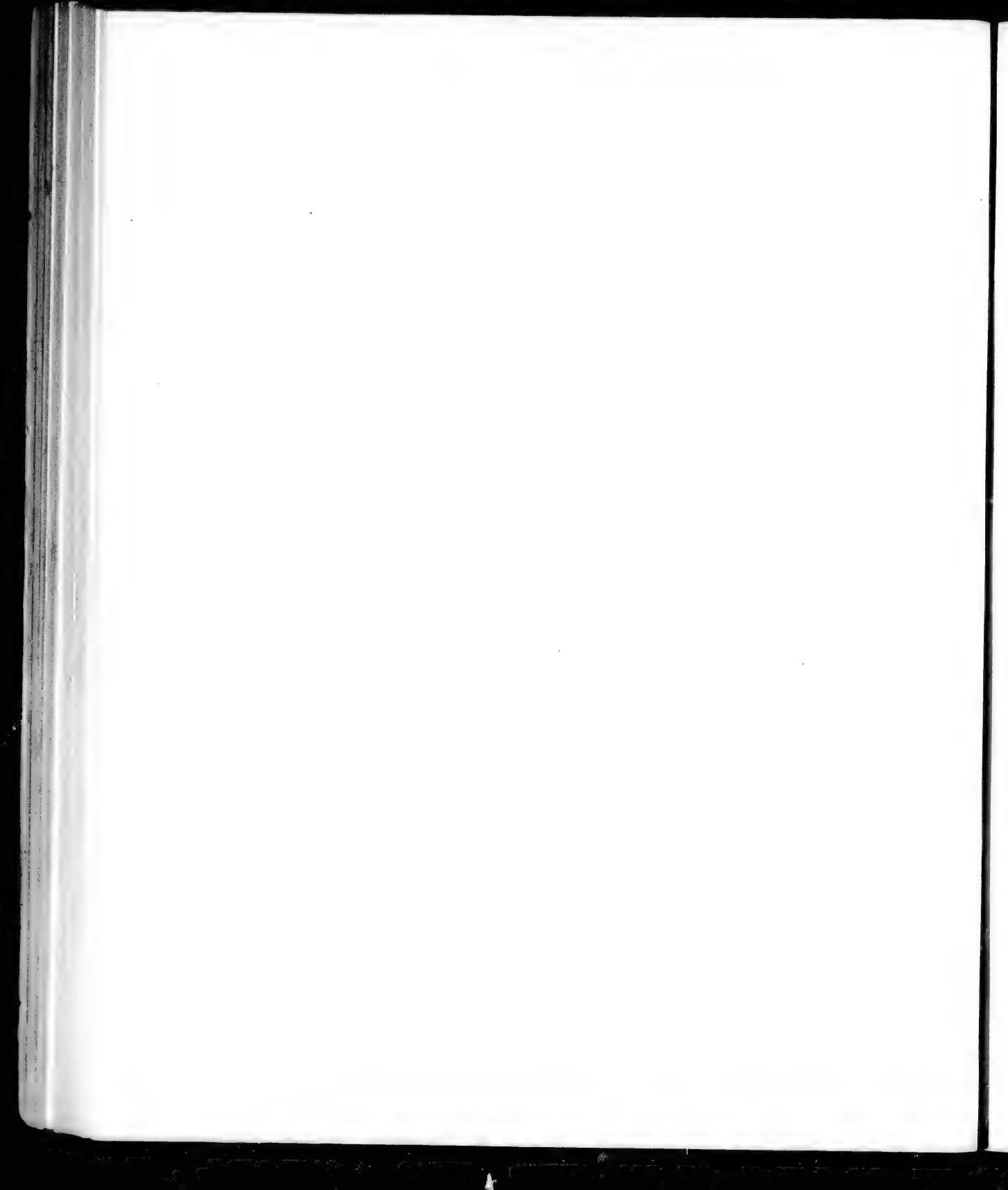
(116)

MADISCO, 17th August, 1870.

MARCUS SMITH, Esq., District Engineer,

I. C. R. R., Dalhousie:

SIR,—According to your request, we now send you, per mail, 1 box containing samples of the cement, which was proved and condemned, with remarks attached to each specimen.



We beg leave to remark to you that the sample you saw when you were here contained too much sand, and we find that it will not take more than 1 to 1c., or 1½ at the utmost.

Hoping that you may find some to your satisfaction,

We remain, sir,

1820

Your very obedient servants,

(Signed)

J. B. BERTRAND & CO.

(per P. R. Turcotte.)

(117)

DALHOUSIE, August 18th, 1870.

To J. B. BERTRAND & Co., Bathurst:

You may use cement equal to samples sent. Lower courses of masonry, much exposed to water, should be in cement proportioned one to one. Show this to Mr. Odell.

(Signed)

M. SMITH.

(118)

BATHURST, August 18th, 1870.

MARCUS SMITH, Esq.,

1830

District Engineer,

Dalhousie.

MY DEAR SIR,—I have shown the sketch of masonry you enclosed in your letter of 11th instant, to the foreman of stone cutters, and he thinks it will be less work to get the stone for the abutments out in 18" courses, and to have a breadth of bed 2' 4" and 1' 8" in a four feet wall, alternating the wide and narrow beds in every other course from front to back, something like the sketch below.

(Sketch.)

1840 The headers running from front to back in every case. The foreman seemed to think he could work his stone to better advantage in this way, as he could use them of so many different lengths. He will have very much more cutting to do, and this is the principal expense in a granite quarry, where stone may be quarried to almost any size and shape.

The stone cutters are at work on the Nipissiguit River Bridge. I suppose the north abutment will go down to the rock. Will footings be necessary?

There is nothing said in the specification with reference to the distance of catch water drains from the top of slopes. What is the nearest distance you must think of allowing?

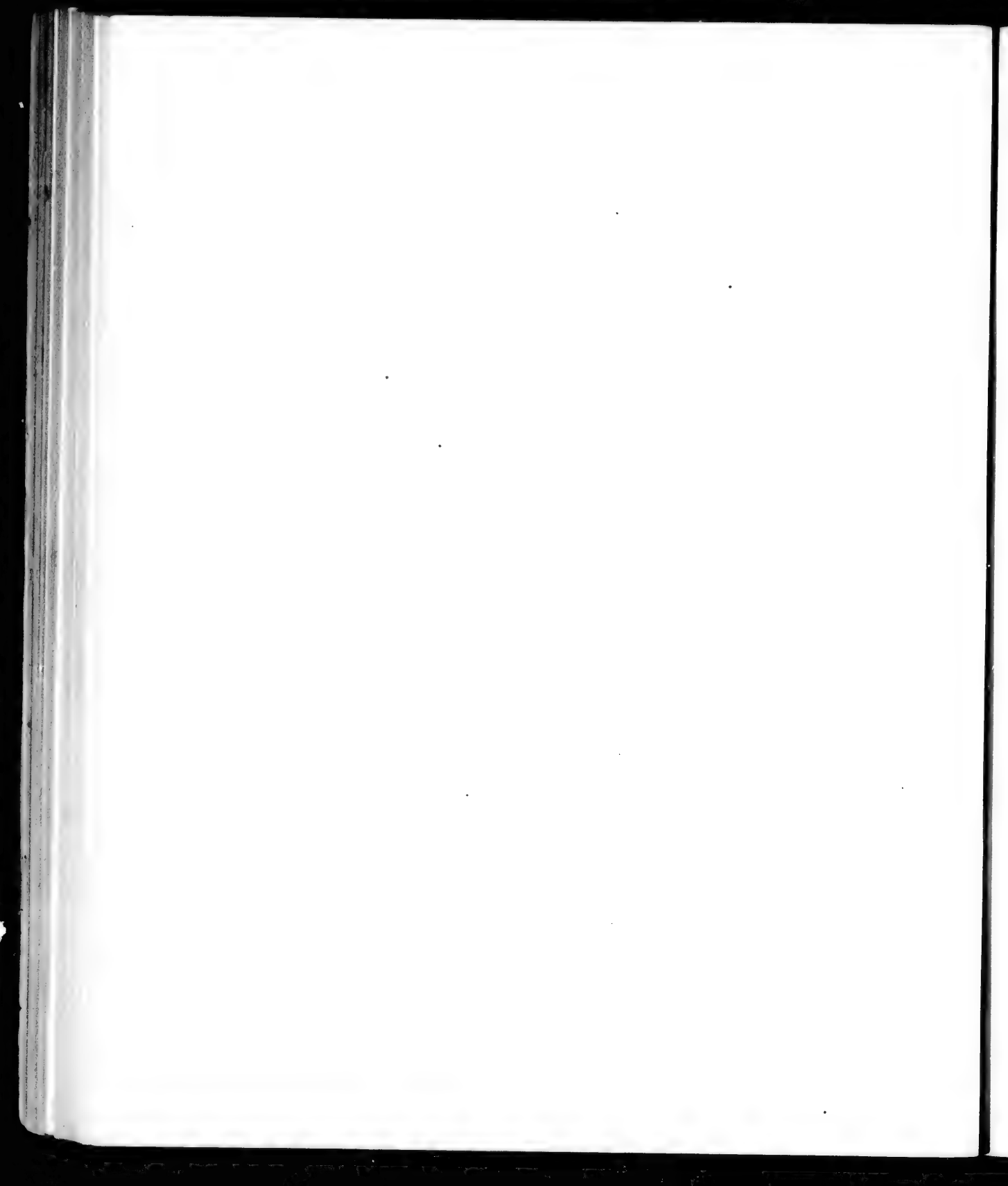
I have had the survey made for the stream diversion at 471 and 475, and we can settle it when you come down.

Yours very truly

1850

P. A. PETERSON,

Engineer, Division N.



(119)

MADISCO, 19 Août, 1870.

MESSIEURS LES COMMISSAIRES,

Chemin de fer Intercolonial.

MESSIEURS,—Nous avons l'honneur de vous informer que nous avons transporté notre bureau d'affaires à Bathurst, N. B., où nous vous prions d'envoyer toutes correspondances et documents relatifs aux travaux des Sections Nos. 9 et 15. Ce faisant vous obligerez beaucoup.

Messieurs les Commissaires,

Vos très-humbles serviteurs,

1860

J. B. BERTRAND & CO.

(120)

QUEBEC, 24th Aug., 1870.

HON. H. L. LANGEVIN, C.B.

DEAR SIR,—I have only received this morning from Bertrand, statements of work done on his sections, and explanations on the subject. It is clear that the sum allowed him in the July estimates is much under what it should have been, if a fair calculation had been made. He had in all, including those at the stone quarries, over 600 men employed; and considering that the contract for No. 9 was only given late last fall, and that for nearly two months this spring he was unable to proceed with work, although ready to do so, from there being no engineers on his section, the progress made on the whole is not so unsatisfactory as represented. Instead of confining himself to earth works only, he has had a large quantity of stone quarried; organized its transport by purchasing a tug steamer at a cost of \$12,000; building scows, &c., and his general preparations to go on with his sections to their completion. The hardest portions as well as the easiest have been well arranged, and heavy preliminary expenses incurred in doing so.

1870

I am convinced, if a fair view is taken of what he has done on No. 9, and the preparations for further work made, it will compare favourably with other sections when the working time has been about the same. As to No. 15, the contract was only given at the end of June, and active works were immediately commenced, one important one being that stone of first-class quality has been largely quarried, and one of the piers of the bridge over the Nepissiguit commenced.

1880

I trust the future monthly reports will be more satisfactory to all of us, and am urging Bertrand to proceed as vigorously as possible.

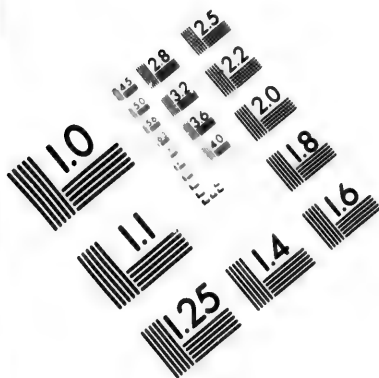
If a fair and liberal treatment is accorded him by the engineers in his sections, I feel sure the future progress of the works will go on all right.

I am Dear Sir,

Yours truly,

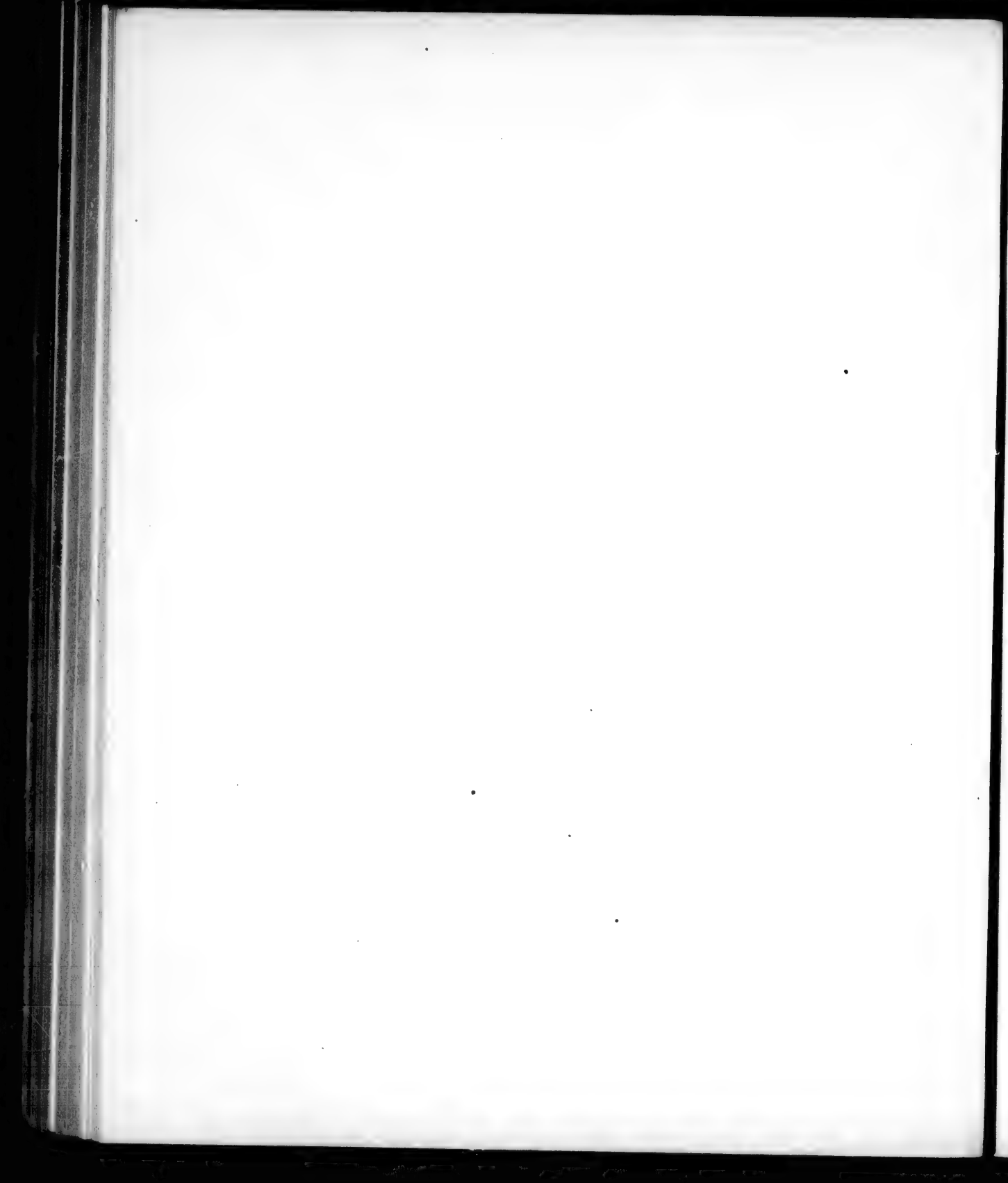
(Signed)

JOHN S. FRY.



28
32 25
22
20

10



(121)

BATHURST, 2nd Sept., 1870.

CHAS. ODELL, Esq., D. I. :

1890 MONSIEUR,—J'espère que vous aurez la bonté de me laisser savoir la décision de Mr. Smith à l'égard de la culvert 221 et 75 sur la Section No. 9.

En faisant vous obligerez beaucoup votre serviteur.

(Signed)

J. B. BERTRAND.

(per. J. B. B. & Co.

(122)

(By telegraph from Halifax.)

8rd Sept., 1870.

To M. SMITH :

As Commissioners want immediately statement of force engaged up to September 1st and other information on every section of line, please complete and mail all progress reports as soon as possible. Reports to twentieth (20th) August received : no force returned for Division "I" : clearing commenced.

(Signed)

S. FLEMING.

(128)

BATHURST, September 5, 1870.

MARCUS SMITH, Esq. :

District Engineer, Dalhousie :

1910 MY DEAR SIR,—I endorse diary extracts, force returns, &c. The owner of the land at 471 and 474 objects to the stream being diverted from the former to the latter place. He says he intends to build a house near 471, and wishes to have the stream near it. I told him that this summer the stream was dry all the time, and that last summer there was very little water in it, and that it would be of no use to him at the very time he would require water the most. He persists in saying it is a valuable stream, and that he don't want its course changed.

The contractor commenced to work the cut at 470 on Friday, and has commenced the ditch along the bank from 471 to 474. Shall I let contractors go on as if owner was quite content?

Yours very truly,

P. A. PETERSON.

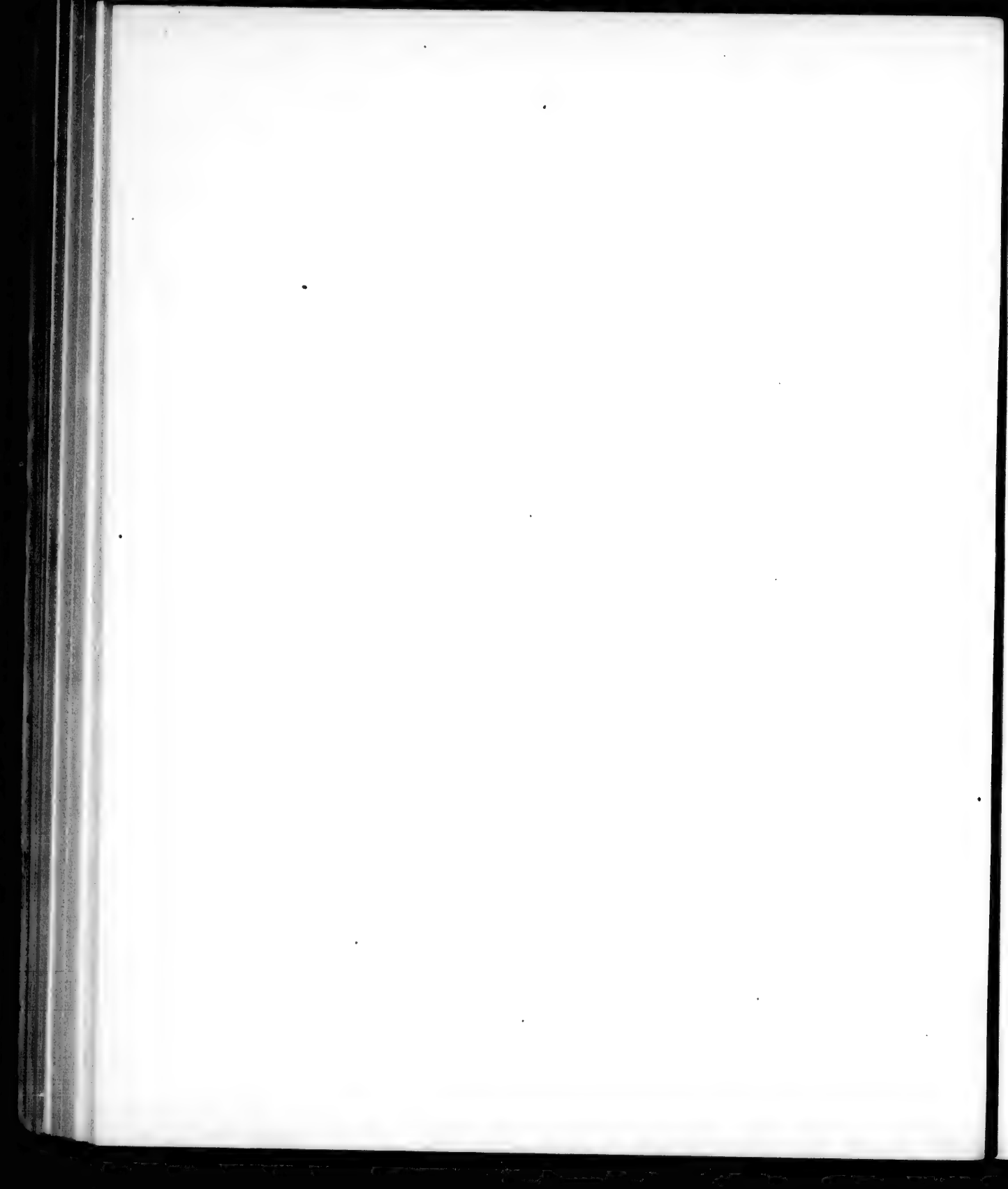
(124)

5th Sept., 1870.

CHAS. ODELL, Esq.,

Engineer, Division N. :

1920 MY DEAR SIR,—Please sign the enclosed certificates (after having checked them), and mail to Chief Engineer, Halifax. I found the first item, (A.) 280 at \$12 = \$2,400, should



be \$8,800. Chief Engineer found same, and telegraphed me to have it corrected. I also found masonry entered second-class instead of first-class; all structures over 10 feet span are first-class.

Yours truly,

M. SMITH.

(125)

5th Sept., 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer I. R. R. :

1930 MY DEAR SIR,—Herewith I send you returns of work done up to the end of August on Contracts Nos. 8, 6 and 18; No. 15 I sent from Bathurst on the 2nd inst., and No. 9 I returned to Mr. Odell corrected, instructing him to sign them and then mail them to your address, Halifax. There is only a very little clearing done on Nos. 17 and 19, and contractors will not require a certificate for August.

Yours most truly,

(Signed)

M. SMITH.

(126)

MADISCO, 5th Sept., 1870.

MARCUS SMITH, Esq., District Engineer,

Dalhousie :

1940 SIR,—We have the honor to inform you that we have finally decided where to take the stone for masonry of Sections Nos. 8, 6, 9 and 15, and to submit to you the expenses that we have incurred in preparing for the distribution of same to the different places of the work. First contract of Section 9 was let out so late last fall that we were unable to procure tools before May 2nd. There was a great deal of clearing to be done, and, consequently, parts of it could not be burnt before June and July, which caused delay and prevented us to take advantage of the fine season. We also solicit your kind attention on the number of quarries we have opened. At New Bandon itself we had 26, besides good many others, which proved unsatisfactory, and had to be closed.

1950 We also had a quantity of cement which was condemned and that just as masonry was commencing. The above explanations will, we hope, sufficiently prove that we have done our best to push on the work, and that we did not altogether meet with the success we anticipated. Before proceeding into the details of the arrangements which we have laid out, allow us to furnish you with statement of above-mentioned expenses, viz :

Quarries at New Bandon.....	\$ 1,500.00
Steam tug.....	15,000.00
2 large scows.....	8,000.00
Carried over.....	\$19,500.00

	Brought forward	\$19,500.00
1969	15 small scows	6,000.00
	Forges and tools	600.00
	25 Quarries opened. Bad result.	6,000.00
	Explorations	2,000.00
	Wharf at Elm Tree and dredging	500.00
	Powder magazine	200.00
	Special Waggon for stone	800.00
	Anchor and chain at Grand Anse	800.00
		\$35,400.00

This amount does not comprise tools of all kinds, winches, anchors, chains and cordage. We have also ordered the following:

1970	4 Portable engines	\$ 6,000.00
	4000 Kegs blasting powder	12,000.00

And an elevator. We will shortly send a squadron of men for lumbering so as to have 5 or 6 large scows built, probable expense \$4,500.00 We will now proceed with our new arrangements, which we hope will meet your approbation. We will continue to work the best quarry at Grand Anse ; it will, we think, furnish a sufficient quantity of soft stone for the Four Sections. In order to facilitate the shipping we have decided to build two wharves at cost of \$4000 ; and then schooners and scows protected with our steam tug will convey a large quantity of stone in a very short time. Section 15 will have its particular quarries as stone is to be got quite handy to the work ; it will be dressed and conveyed immediately where it is to be employed. We have in the Nepissiguit $\frac{1}{2}$ mile above rough water, a splendid and very extensive quarry of hard granite ; it splits well, and can be taken out in very good shape ; it will be divided into three parts, that is one for each section, and will be worked same time. Stone to be dressed and hauled down to most convenient place for early shipping. The granite quarries and rock excavation now in course of operation will actively be worked all winter.

In kindly submitting to the Commissioners the above statement of affairs, you will greatly oblige

Sir, yours respectfully,

(Signed)

J. B. BERTRAND & CO,

Per J. Turcotte.

1990 (127)

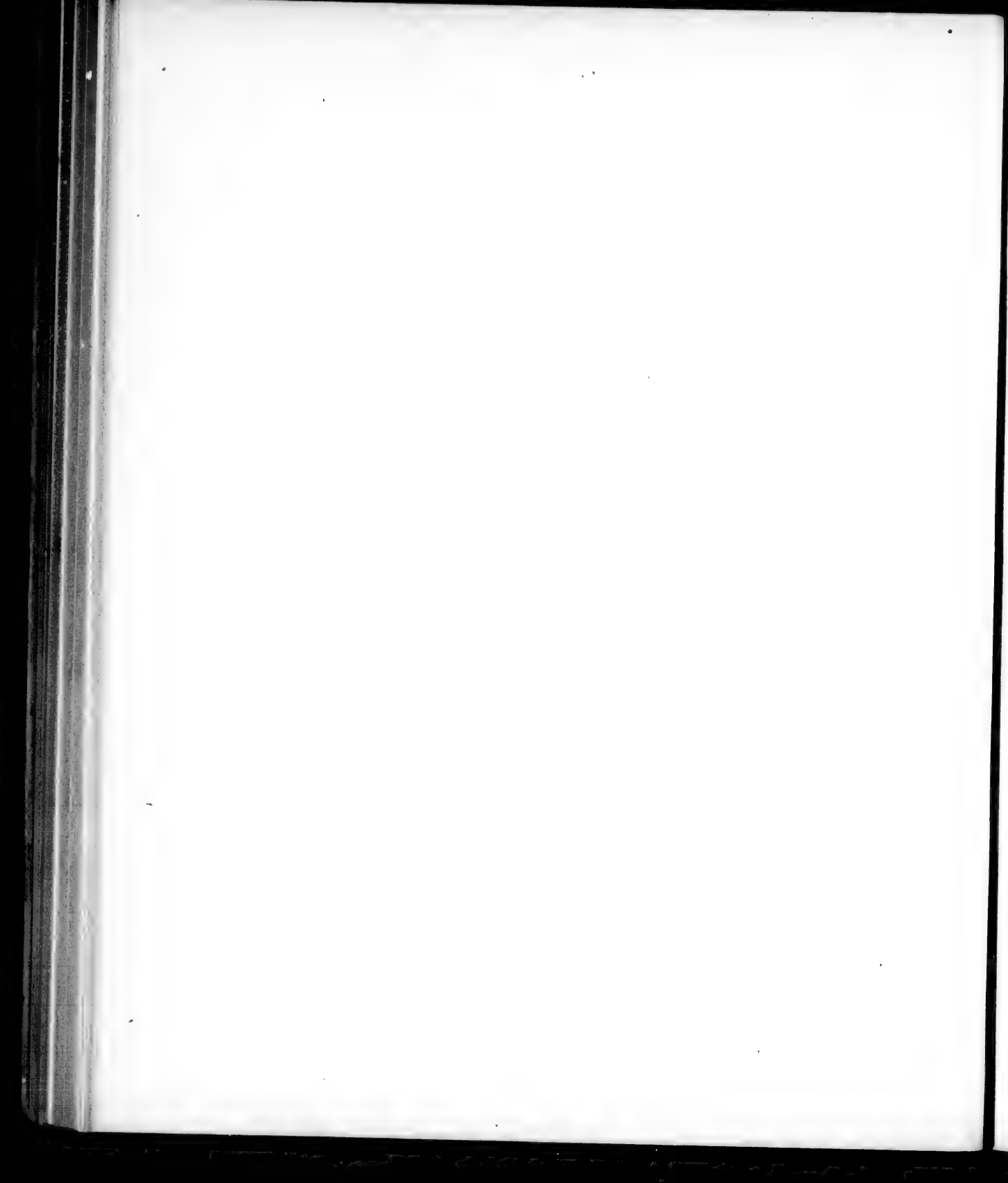
MADISCO, 7th September, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

SIR,—In our letter to you, dated 5th instant, we omitted some words which you will please add.



. After 1st paragraph it should read thus:—We beg to call your attention to the disadvantages under which we had to labour ; first contract of Section No. 9, &c.

Yours very respectfully,

J. B. BERTRAND & CO.,

Per J. Smith.

2000

(128)

BATHURST, September 18th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

MY DEAR SIR,—The contractor says you agreed to let him put in the culvert at 472 a "double box" instead of a "four foot arch." Will you be so kind as to let me know if such is the case?

A ditch has to cross the road at 890, and, in many cases, water will have to be carried across public roads. Would you prefer the sketch you made me for farm crossings or a
2010 wooden box culvert, something like the sketch below.

(Sketch.)

But putting cedar stringers on top of other logs, and then planking on the top of them, we shall get a very fair culvert. I suppose the matter of cattle guards may rest till you come down. I am urging Bertrand to get some culverts started. I think he will begin to cut stone for them next week.

Yours very truly,

P. A. PETERSON.

(129)

HALIFAX, 15th September, 1870.

MARCUS SMITH, Esq.

2020

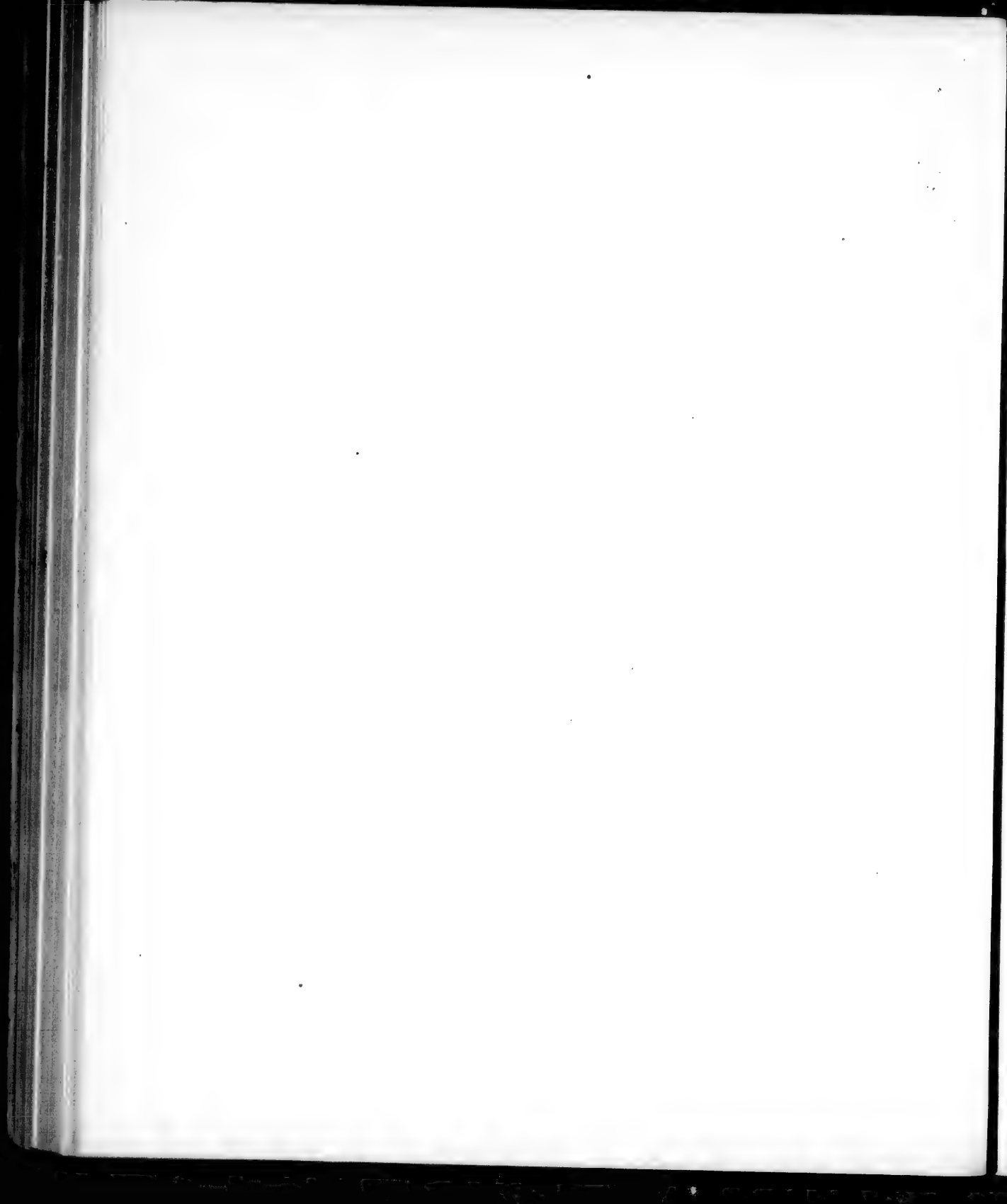
MY DEAR SIR,—I enclose tracing of a short length of 36-inch iron pipe, which will be found useful in making up the proper lengths at different points where this description of structure for the passage of streams may be employed. The ordinary length of 36-inch water pipe is, I think, 9 feet, so that if these only were ordered, the piping would be, in some cases, too long or too short for the place. The short 8-foot lengths will meet the difficulty. They will also be useful in turning the inclined portions to horizontal at lower end, as shown on sketch. With this in view, the top of pipe should be cast, as shown, two inches shorter than the bottom.

The weight is specified 450 pounds per lineal foot : the short lengths will average a little more, on account of the faucet joints occurring more frequently.

2030

Yours truly,

SANDFORD FLEMING.



(180)

OTTAWA, 20th September, 1870.

The Commissioners appointed to construct the Intercolonial Railway, have to report for the information of the Governor in Council, that some of the contractors for the different sections complain that the estimates upon which they are paid are insufficient, and do not fairly pay them for the work done.

The system upon which the estimates are made up is, as the Commissioners understand it, as follows :

2040 The Engineer, in stating the gross quantities of work to be done, added a percentage to the results of the measurements to cover possible errors or deficiencies. In making the monthly measurements of work done, the actual quantity executed is measured bare, no allowance being made for the additions made to the gross amount. This will affect the percentage returned by the engineer from 5 to 10 per cent.

Having thus ascertained the quantities, the engineers work them out at the schedule of rates, each item of which is reduced by 10 per cent., to cover possible errors, omissions, and contingencies, and the result is that the amount certified by the engineer is from 15 per cent to 20 per cent less than the value of the work really done during the month.

2050 From the amount thus certified by the engineer, the Commissioners deduct, as provided by the contracts, 10 per cent., so that before the money reaches the contractors, it is in reality from 25 per cent. to 30 per cent. less than the value of the work which has been done.

But it has further to be remembered that the measurements of the work have to be begun about the middle of the month, and the amount of the certificates is not paid until about ten days after the end of the month for which the certificate is made out, so that the Government has always nearly three weeks' work done beyond the amount of the certificates when the money is paid for them.

(181)

Copy of a Report of the Honorable the Privy Council, approved by His Excellency the Governor-General in Council, on the 20th September, 1870.

2060 The Committee of Council have had under consideration the communication dated 20th September, 1870, from the Intercolonial Railway Commissioners, representing the hardship to the contractors of the present system upon which the monthly estimates of work done on the several sections are made up, and the heavy percentage unnecessarily retained from them, and recommending that the engineer be instructed to make the returns of quantities actually executed fully equal to the work actually done each month, and that no deduction of 10 per cent. from the schedule prices be made for errors, omissions and contingencies.

The Committee, on the recommendation of the Hon. the Minister of Public Works, advise that the foregoing recommendations be approved and acted on; and that, in the

2070 certificate required to be given by the Chief Engineer, that officer be at liberty to state that the per-centage is relinquished, in compliance with instructions from the Commissioners.

(Certified).

WM. H. LEE,

Clerk P. C.

To the Honorable the Commissioners,

Intercolonial Railway, &c., &c., &c.

(182)

BATHURST, September 20th, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie.

2080 MY DEAR SIR,—I enclose diary extracts and force returns for week ending September 17th. I was unable to send them yesterday, as my assistants were busy laying out work, and did not get in in time to make their returns.

I have had the foundations of the bridges laid out, but the contractor can spare no men from the cuts to sink the pits.

Yours very truly,

P. A. PETERSON.

(188)

BATHURST, Sept. 21st, 1870.

MARCUS SMITH, Esq.,

District Engineer,

2090

Dalhousie :

MY DEAR SIR,—Nearly all the farm lines cross the railway at a slight angle, and in some places, as between Little River and the Nipissiguit, the angle is quite sharp. Shall I make the farm crossings parallel to the lot lines, or at right angles to the centre line of railway ?

By crossings parallel to the lot lines the double crossings will come in much better, and they will, I think, in every case, look much better.

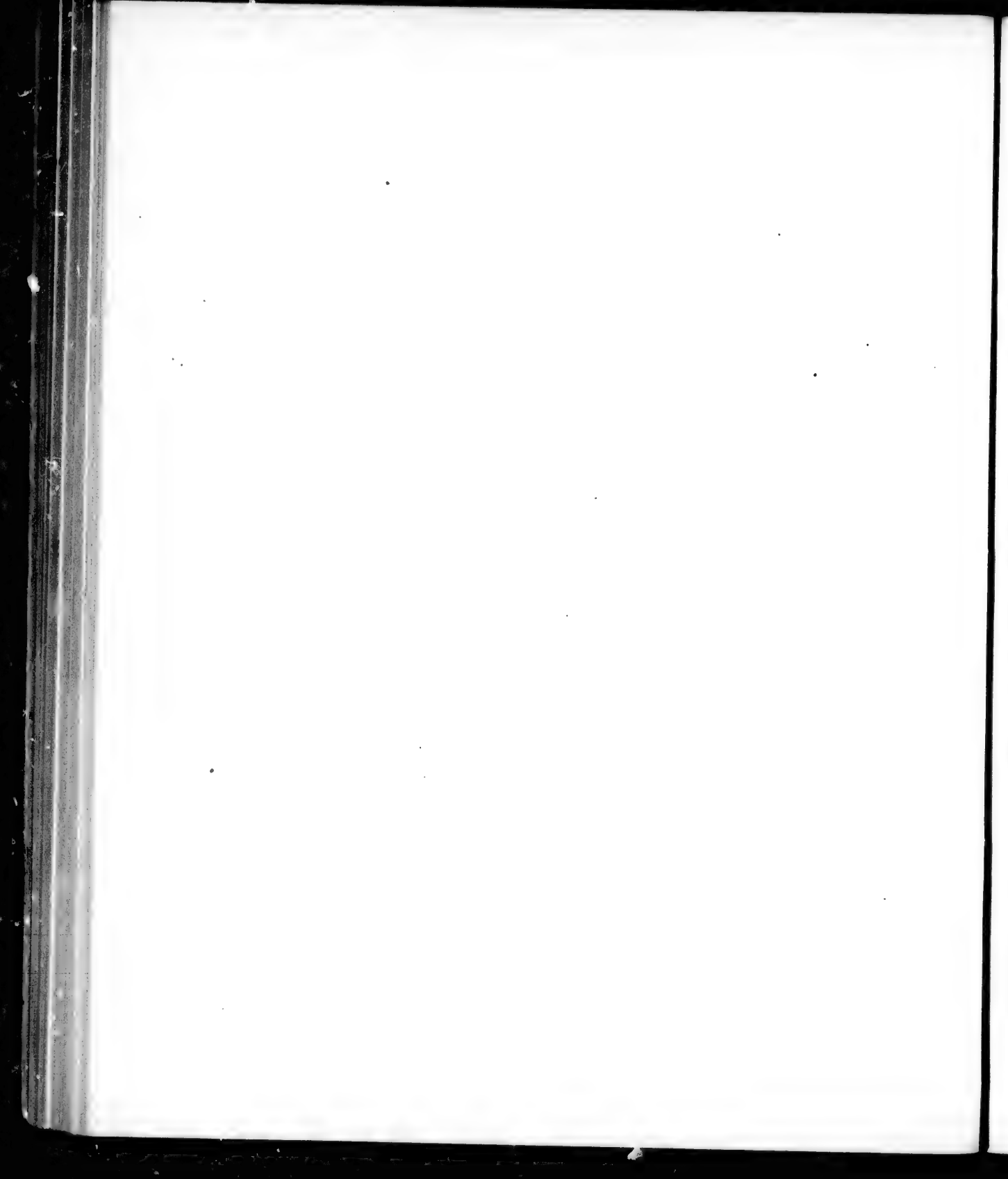
Yours very truly,

(Signed)

P. A. PETERSON.

The contractor has just written me to lay out the first abutment at the Nipissiguit 2100 River. Have you received the plan yet ?

P. A. P.



(184)

BATHURST, Sept. 21st, 1870.

P. A. PETERSON, Esq.,

Chief Engineer :

SIR,—Would you please to lay out the foundation of the first abutment at Nipissiguit River, and oblige,

Yours obediently,

(Signed)

J. B. BERTRAND & Co.

(185)

5th Oct., 1870.

2110 P. A. PETERSON, Esq.,

Engineer, Division N. :

Referring to your letter of the 18th Sept. :—*Station 482 to be a double box culvert instead of a four feet arch.* I think I have already fully explained this matter.

At Station 890, and other places, water will have to be carried across public roads and private crossings.

A general plan will be sent you, showing the sort of structure that will be used to cross low and narrow ditches, as well as of those of greater width and depth. The following rough sketches may serve you in the meantime :

1st. For ditch at Station 890 and similar ditches elsewhere.

2120

(Sketch.)

This should be all made of cedar, and I have shown the abutments three logs deep, as you would not easily get timber large enough to get the height with two logs. You will get these out of timber 12 inches diameter, and the covering logs, on which rests the earth and gravel, should not be less than six inches diameter; the cross pieces and sills nine inches at least.

For larger ditches and higher embankments, the bridges would be something like this :

(Sketch.)

Or with framed bents thus :

2130

(Sketch.)

Or where the embankment in approaches is not so high, a bend may be placed in the middle of the ditch and one at each end, and sometimes when the embankment is still lower and the ditch wide, there may be either one bend in the centre, or one at each side of the ditch, and the stringers simply resting on one or more logs at the end, thus.

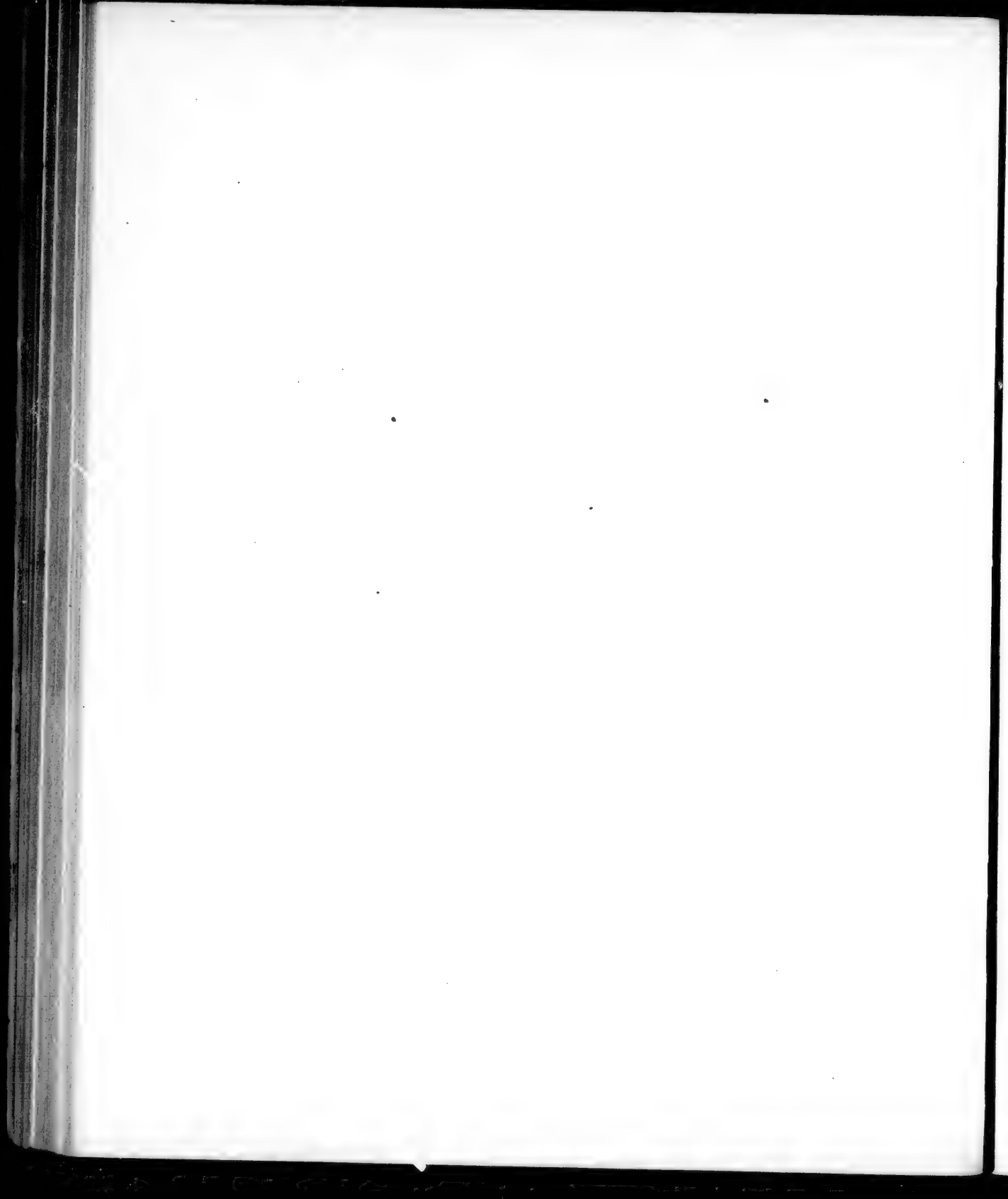
(Sketch.)

The sills should always be of cedar; and when the bridge is covered with earth and gravel, the round logs that support the earth should be of cedar; as also the guard rail or curb.

2140

Yours most truly,

M. SMITH.



(186)

BATHURST, 6th Oct., 1870.

To P. A. PETERSON, Esq.,

SIR,—Would you please to lay out the foundations of the pier, and abutments of the bridge at Tête-a-gauche, and to tell us what kind of foundation you will require.

Also, to lay out the foundations of culverts at Station 475, and to decide about that place.

Also, to mark out the ditches at each side of the dump at Nipissiguit, and to give us the qualities and sizes of the wood required for the cattle guards, and tell us if we construct the fencing according to same specifications of Sections 3, 6 and 7.

We would require the above soon, so as to give orders for the different timbers necessary for next summer. Hoping you may be pleased to favor our request.

We remain,

Yours respectfully,

(Signed)

J. B. BERTRAND & CO.

(187)

BATHURST, October 7th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

2160

MY DEAR SIR,—The contractor has written me about the culvert at 474, and wishes to go on with it this autumn. I informed him that he had better go on with some of his other culverts, as we had not sufficient data to decide upon its proper size, and that if he wished to build it now, he could commence a six foot arch ; but if he waited till next year, we might reduce it to a five foot arch. He does not want to build an *arch*, as he says the granite will not answer for it, and that Mr. Fleming told him the granite could make covers of three feet span ; so he wants to put in a double box of three feet spans, and high enough to make the capacity equal to a six feet arch. Will you allow this ? Can you send me a specification for *fencing and cattle guards* ?

Yours very truly,

2170

P. A. PETERSON.

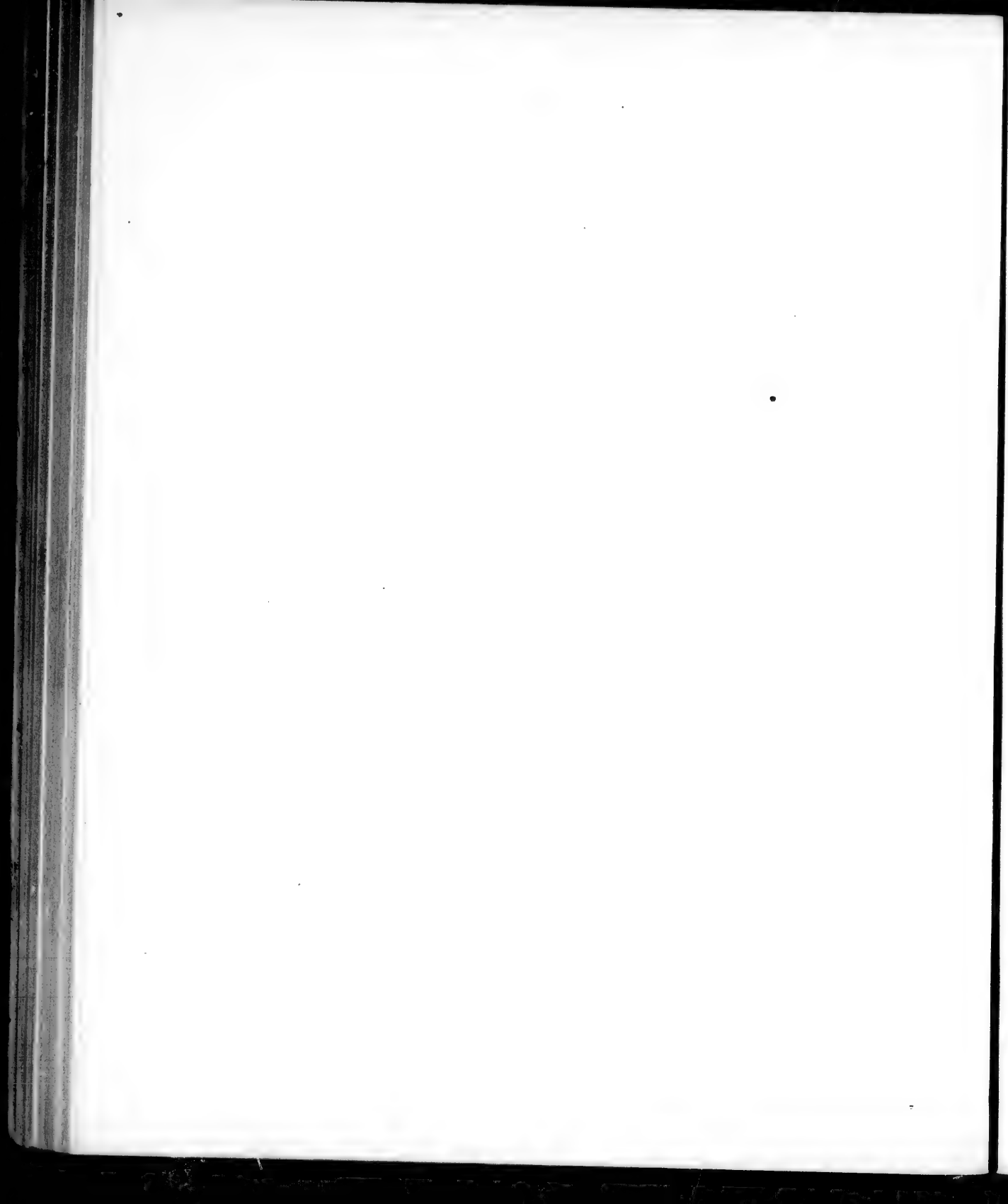
(188)

DALHOUSIE, 10th October, 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer, I. C. R. A. :

MY DEAR SIR,—Mr. Grant informs us that the assistant (Mr. Cadman) that has been sent to him does not like the section to which he has been appointed, and has applied to one or more of the Commissioners to be transferred to one of the easier sections, now about to be put under contract.



Mr. Grant says he is really not fit to do the work on Contract No. 19 ; he is a mining engineer, and has had little or no experience on the construction of railway works ; is not
 2180 even expert in taking levels, running lines, or setting out work, and is physically unable to get over the ground in a hilly country. Mr. Grant would be very glad to let him go, and hopes to have a more experienced assistant to take his place.

I have had a careful survey made of the stream and road bridge which you saw on Contract No. 9. The foundations of the bridge are not deep enough to bring the stream through, but the width between abutments (20 feet) would admit culvert abutments four feet thick in face of the other, sunk to the requisite depth, and have 12 feet opening : but the blunder in the wings would necessitate the taking down of a considerable quantity of the masonry. I therefore think it would be better to take it all down, and use the stone for the 12 foot culvert in its proper place, and divert the road to a level crossing. If this meets
 2190 your views, I shall order it to be done at once. There are only 158 c. yards of masonry in the bridge (as now constructed), instead of 400 c. yards, as given from memory by Mr. Odell ; and to have made 2 spans, so as to take both stream and road under the same structure, would not have cost any more than a culvert and road diversion, and would have been the best way of getting over the difficulty. I shall send you a plan as soon as I can get it ready, and perhaps it will be better not to make any alteration till you see this.

I hope the Commissioners will not make the proposed alterations in the engineering staff till we have time to consider where reductions might be made, without destroying the efficiency of the staff. I shall go over the matter and report to you very soon.

Yours most truly,

2200

M. SMITH.

(189,

BATHURST, 11th Oct., 1870.

P. A. PETERSON, Esq., C. E. :

SIR,—Would you please to lay out the foundations of the pier at west side of Nipissigau River.

We are, Sir,

Yours respectfully,

(Signed)

J. B. BERTRAND & CO.

(140)

BATHURST, Oct. 12, 1870.

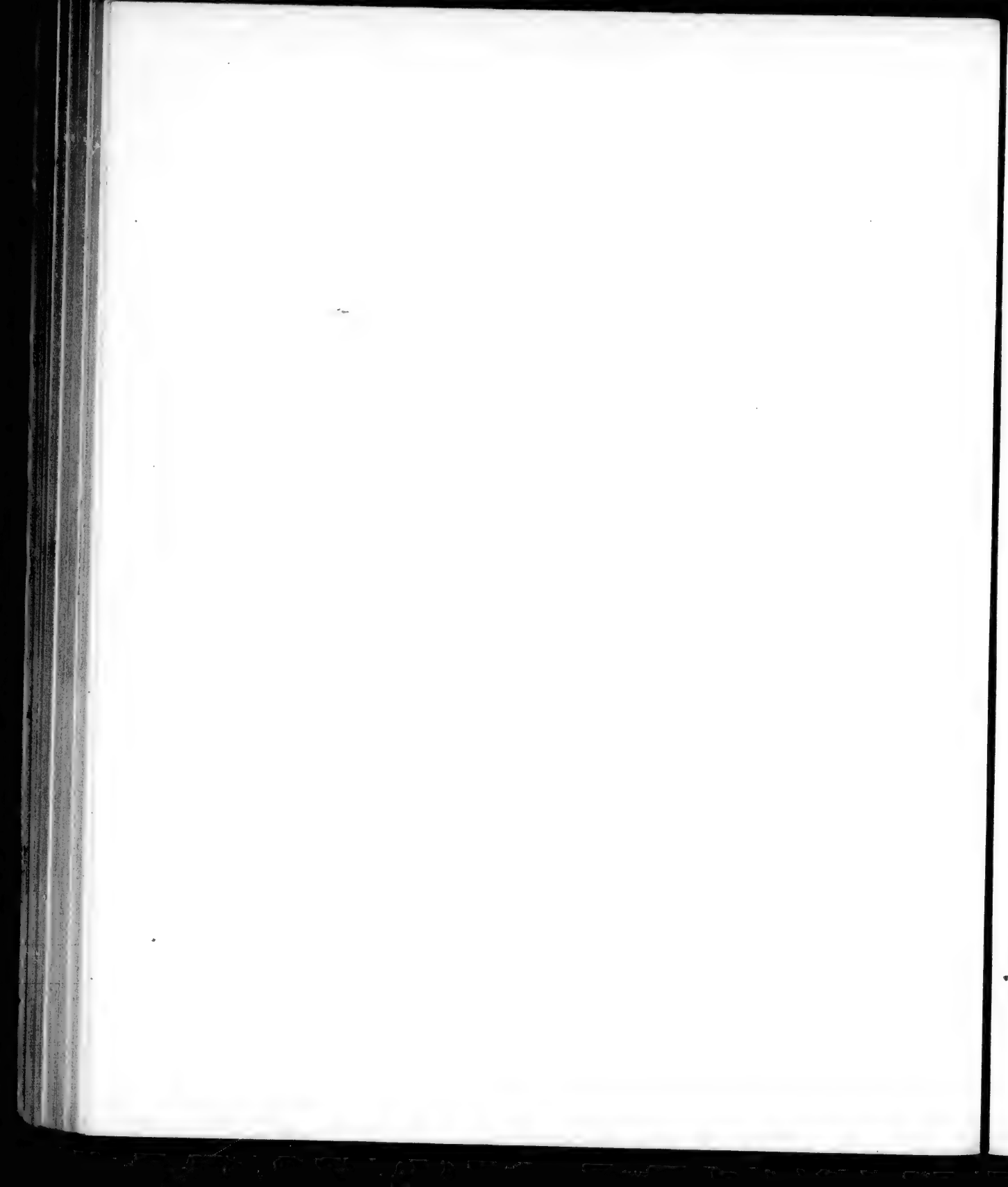
MARCUS SMITH, Esq.,

2210

District Engineer,

Dalhousie :

DEAR SIR,—Your letter of the 6th inst. was received yesterday, and I have had the culvert staked out.



I have had a survey made of the streams and water courses between 470 and 486, and now send you a plan of them. You will see that the stream at 481.45 runs southward away from the river, so, if we do away with the culvert at this point, we must cut a drain into the Little River to carry the water away that would accumulate on the north side of the line. At present there is but little water flowing—just enough to see which way the water runs, but in the spring a good deal of water would be there. So the question is whether we
 2220 had better put in a single box culvert, 2' 6" + 4' or cut the drain as shown by the dotted line A. A. At low water there is only a difference of a little over five feet between the swamp at 481.45 and the river at A, and at high water I think the difference would be diminished to about two feet. The first six hundred feet of the ditch would be easily enough made, but the remainder would be certain to run into large boulders and perhaps solid rock. So I think that we had better put in the box culvert (single) at 481.45. It will make a better job, and I am not certain that it will cost very much more.

If you look at the general plans of the box culverts you will see that the top of the paving is in every case 18" below the ground line. Is this an error?

Yours very truly,

P. A. PETERSON.

2230

(141)

BATHURST, 18th October, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

DEAR SIR,—The contractor wishes to commence the culvert at 325, where there is now the 12' arch and the 6' beam culvert. Will you please let me know what kind of a structure you propose to put in this place.

Yours very truly,

P. A. PETERSON.

(142)

18th October, 1870.

2240 P. A. PETERSON, Esq.,

Engineer, Division N :

DEAR SIR,—Herewith I return you tracing of plan of streams from 470 to 486. We cannot cut a drain, as you suggest, through land not belonging to the Government.

The drain should be cut, as I have shown in pencil, from C to D, and the material used for the embankment. If, from rock or other cause, this cannot be done, you will then put in a culvert 2 ft. 6 in. square, or 2 ft. 6 in. wide by 3 ft. high.

Yours truly,

M. SMITH.

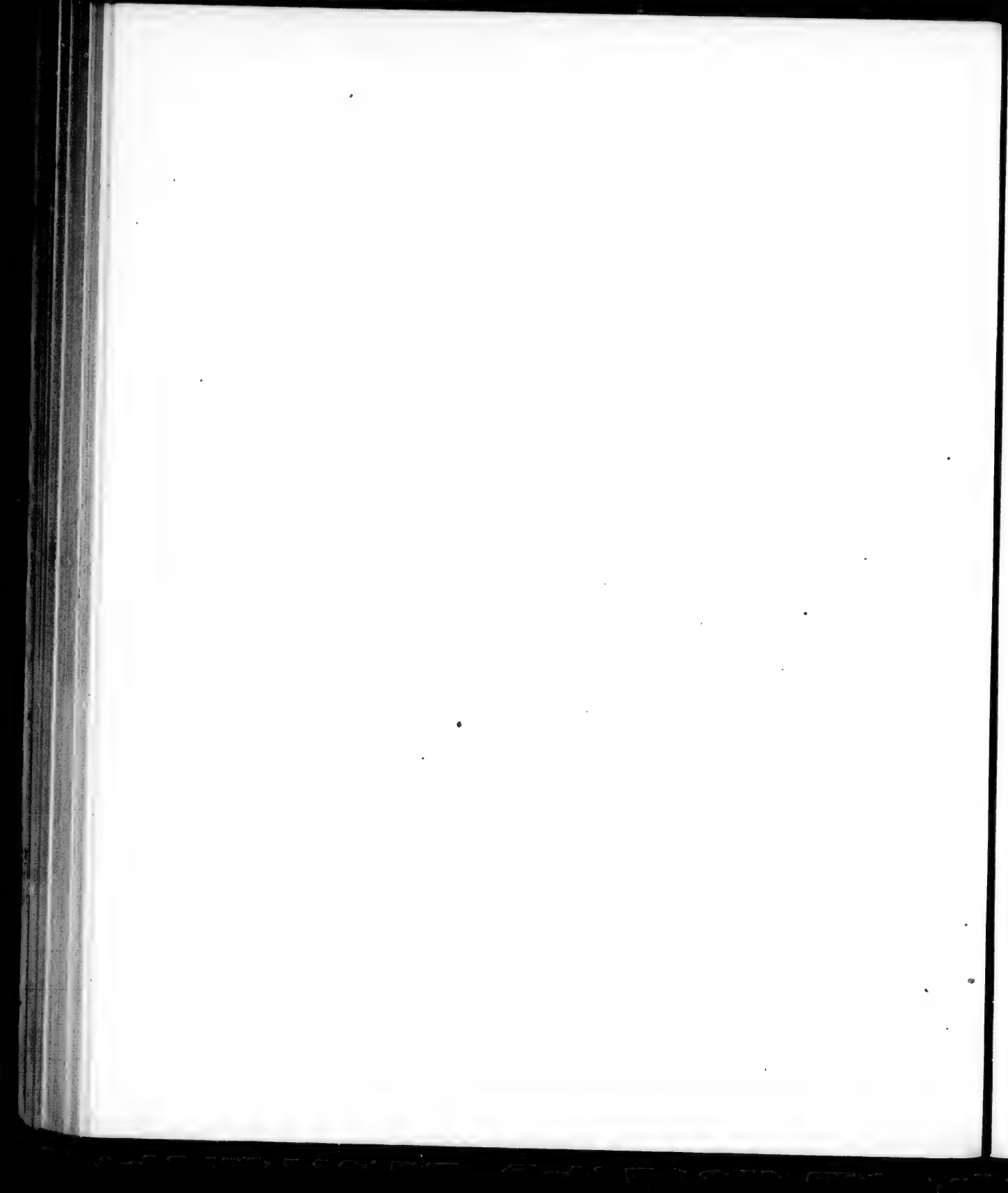
(143)

BATHURST, 17th October, 1870.

2250 MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

DEAR SIR,—I enclose you plan of road crossing at 285, and site of culvert in Hon. Jno. Ferguson's farm at 324.64.



The road crossing is the one I spoke to you about changing to an overhead bridge from a level crossing. Your objection to an overhead crossing was that the approach would extend too far beyond the railway limits to allow of a road from the Tête-à-gauche being made beside the railway land; but this is now overcome, as the owner of the adjoining land wishes to have the road from the Tête-à-gauche run between his house and barn, and not between his house and the railway; for, in the latter case, his house would have to be moved. I have
 2260 drawn a section of the road on a nat. scale of $20' = 1''$ and have shown the bank necessary to give a clear headway of 16 feet, and this gives a fill at bridge of 5 feet. The grade here might be lowered 2 feet, and the material will all be required; as by making the bridge, the material out of the road diversions (8,608 yards) will be lost, and more will be required to make up the approaches—about 650 yards—which will make 4,258 yards to be got from lowering the grade. This overhead bridge will please the owner of the land, also please Mr. Francis Ferguson, and will, I think, be much better in every way.

Will you please mark the position and kind of structures you wish put in at 324.64 on the enclosed tracing, and return it to me.

Yours very truly,

P. A. PETERSON.

2270

(144)

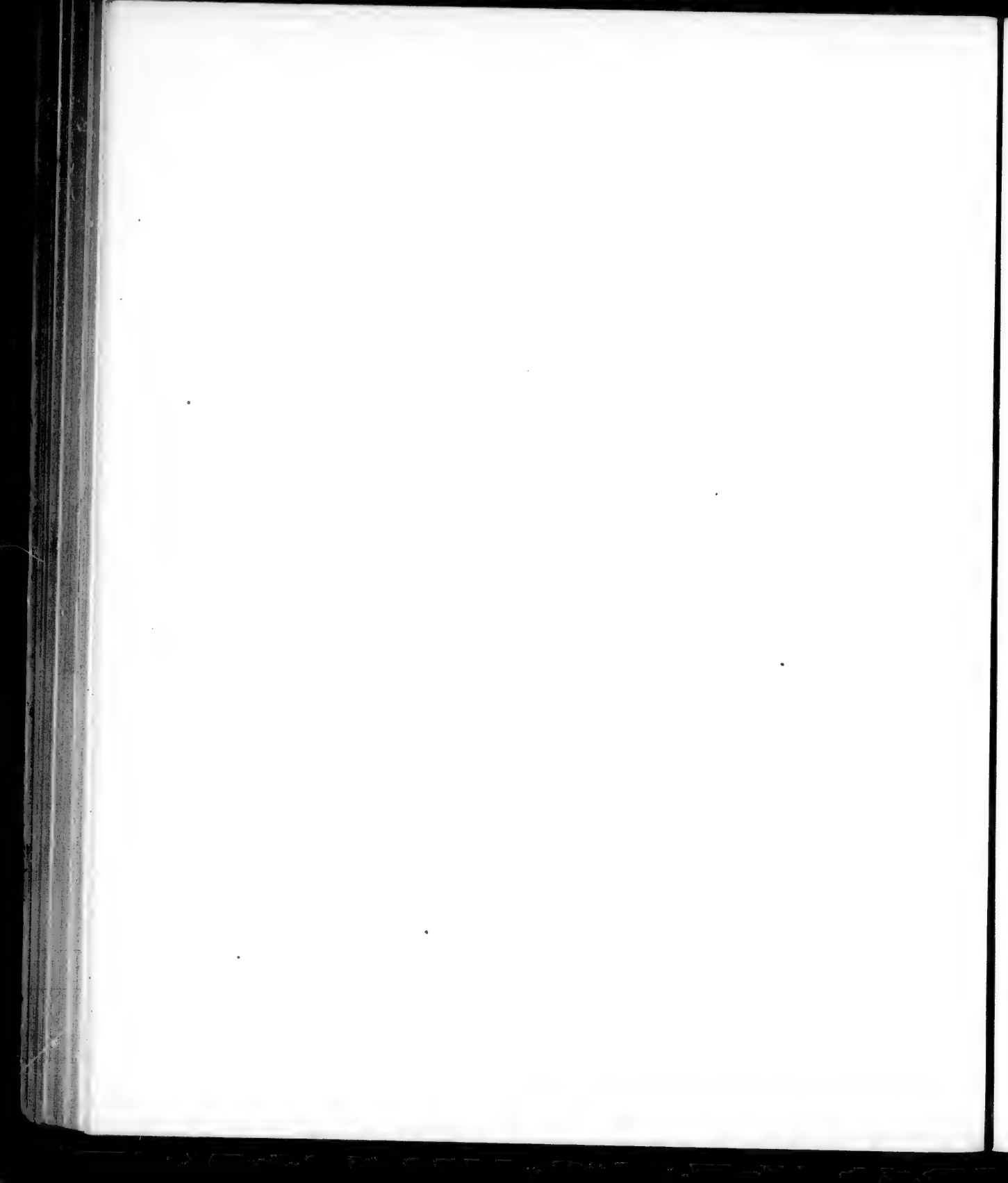
QUEBEC, 17th October, 1870.

C. S. ROSS, Esq.,

Secretary, Intercolonial R. R. C.:

DEAR SIR,—

As the amounts of the last warrants for Sections 9 & 15 do not reach our expectations, we beg to enquire whether the changes in making up the estimates have all been made, or if we are to look for a still further release of the amounts withheld; and we particularly ask on the points of any under measurements or omissions by the local engineer, naming, as an example, one instance on No. 9, viz: the rock cutting at Elmtree
 2280 River, from Station 761 to 776. The quantity estimated on the schedule you will see is 12,233 yards. When the Commissioners visited this place, the cutting was nearly completed; the engineer of the section being asked in their presence how much he thought remained to be done, answered from 800 to 1,000 yards; this, of course, was only a rough estimate, but say there were 1,500 yards, it would still leave 10,733 yards to be paid for. Now, the whole return on that section for rock excavation is only 8,433 yards, and this includes rock done at other places. Then, for the same stations, 13,985 yards of borrowing are allowed for on the schedule, and as all the grading is completed from there to the Nigadoo River, some return should surely be made under that head, a separate item in our tender. But, so far, it does not appear at all in the estimates. We contend that the
 2290 quantities given from station to station in the schedule, being those on which our contracts are based, and for which we must ultimately be paid, are also, as they are completed, what ought to be comprised in the progress estimates, less only the 10 per cent reserved, and not for the latter to be made up from fresh arbitrary measurements; which view of the case,



in justice to ourselves and to our securities, we desire to press strongly on the Commissioners.

We are, Dear Sir,

Your most obt. servts.,

J. B. BERTRAND & CO.

per Wm. E. Blumhart.

2300 (145)

BATHURST, 19th October, 1870.

(By Telegraph from Bathurst.)

To M. SMITH :

Stone-cutters began work at Rough Waters for No. 9, October 10th. Monday, four men; Tuesday, five; Wednesday, five; Thursday, five; Friday, six; and Saturday six.

(Signed,)

P. A. PETERSON.

(146)

BATHURST, October 19, 1870.

MARCUS SMITH, District Engineer,

Dalhousie :

2310 DEAR SIR,—I am having the contractors sink test pits for the foundations of the Tête-à-gauche Bridge. That for the western abutment is down four feet through two feet of black mould, and two feet of hard gravel, similar in every way to that now in the bed of the river. The water has come into the pit, and as soon as the contractors get pumps, I shall have the pit put down two feet more, to the depth marked on the plan for the bottom of the footings. Of course, it will be necessary to bore down a considerable depth to see what underlies this gravel; and I would like to know whether the contractors or we have to do with it.

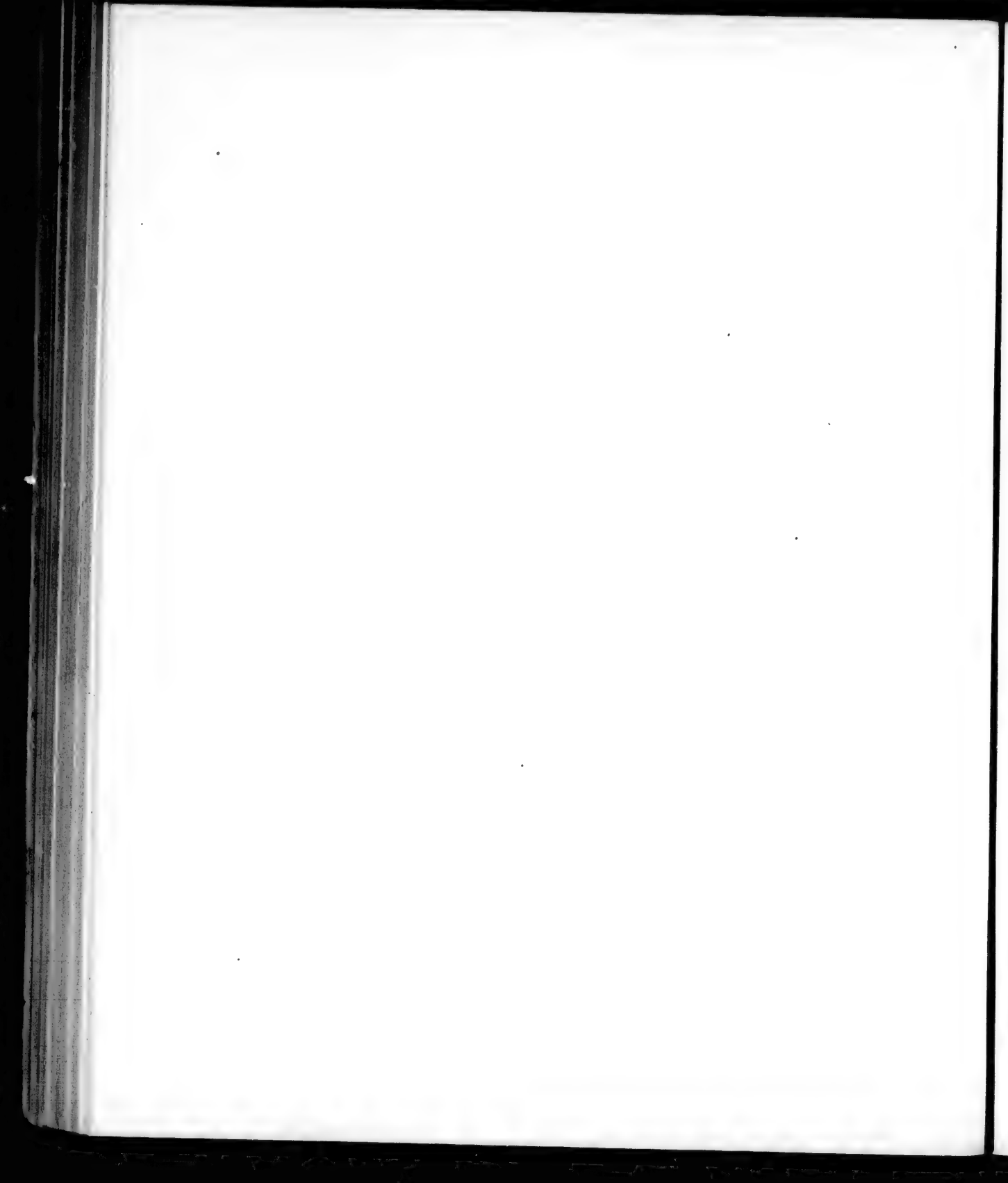
I would like to know what departure from the specification, under the head of masonry, is to be allowed; so that we may not be met at every moment by something which either the contractor or the foreman assures us you or Mr. Fleming said would be allowed.

I would like particularly to know about the beds of the backing (clause 48).

2320 I sent you this morning the time of the stone-cutters, at the Rough Waters, for the last week. There were ten men cutting stone there on Monday last. Do you wish me to keep the time at this quarry in future? Mr. Odell has it in charge, I imagine, for the Inspector informed me that Mr. Odell sent him there to see the stone one day last week.

Yours very truly,

P. A. PETERSON.



(147)

BATHURST, October 22nd, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

DEAR SIR,—The contractor has now got the foundation of the western abutment of 2330 the Nipissiguit Bridge down to the rock. He is clearing it out to-day, so that on Monday I can have levels taken all over the bottom, in order that I can make a section of the bottom under each of the walls. He informs me that he will be ready to commence building about the end of next week, and you are aware that I have no plan to give him to build by. You informed me that General Plan No. 1, Sheet No. 12, would do to cut the stone by, but said you were expecting a plan from the Chief Engineer's office.

Yours very truly,

(Signed),

P. ALEX. PETERSON.

(148)

OTTAWA, October 24, 1870.

C. S. ROSS, Esq.,

2340

Secretary :

SIR,—As requested, I now enclose calculations for every section except No. 20, showing quantities in each case moneyed out at the prices which the Commissioners propose to recommend to Council as the rates at which monthly certificates are hereafter to be made up.

Yours very truly,

(Signed)

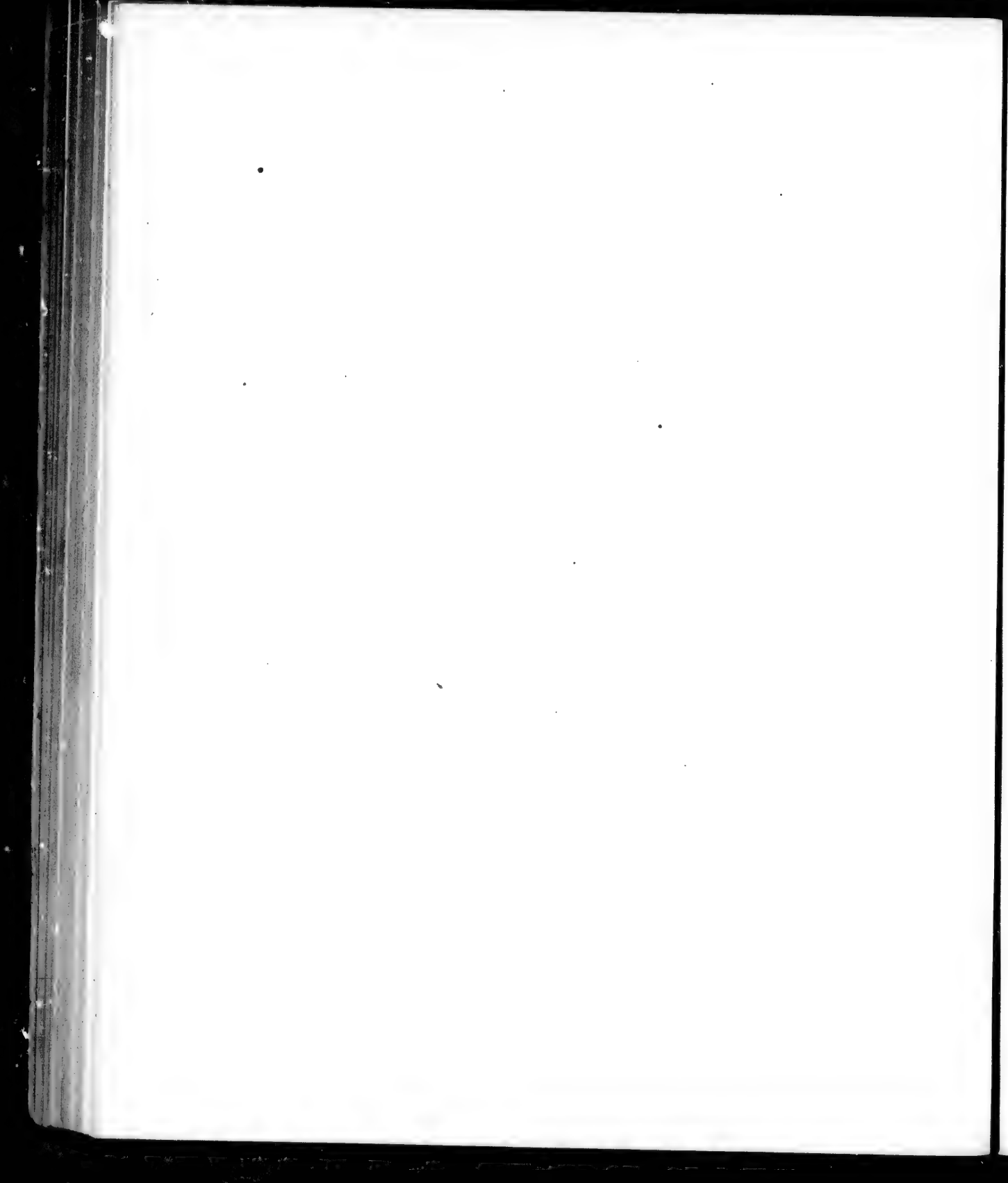
SANDFORD FLEMING,

Chief Engineer.

INTERCOLONIAL RAILWAY.

Contract No. 9. Division of the Line M.

Quantities.	Description of Work.	Rate.	Amount.	Total.
2350	491 Acres, clearing and close cutting.	\$14 00	\$ 6,874	
	227,500 Lineal feet fencing.	5 00	11,375	
	82,000 Cubic yards rock excavation.	92	75,440	
	6,000 " " borrowing stations 580 to 790	55	33,000	
	122,000 " " earth excavation.	17	71,740	
	5,400 Lineal feet under-drains.	11 00	594	
	800 Cubic yards riprap.	2 00	1,600	
	300 " " concrete.	3 70	1,100	
	6,800 " " first-class masonry.	12 00	75,600	
	6,700 " " second-class masonry.	9 00	60,300	
2360	880 " " paving.	3 70	8,256	
	Foundations.			\$840,879 00
	Bridge superstructure.			8,458 00
	Road crossings and diversions.			6,160 00
				4,400 00
	Contract sum.			\$854,897 00



INTERCOLONIAL RAILWAY.

Contract No. 15. Division of the Line N.

	Quantities.	Description of Work	Rate	Amount.	Total
2370	150	Acres, clearing and close cutting.	\$14 00	\$ 2,100	
	122,500	Lineal feet fencing.	5 00	6,125	
	6,500	Cubic yards rock excavation.	90	5,850	
	680,000	" " earth excavation.	20	126,000	
	15,000	Lineal feet under-drains.	12 00	1,800	
	750	Cubic yards riprap.	2 00	1,500	
	600	" " concrete.	4 00	2,400	
	121,00	" " first-class masonry.	11 00	133,100	
	4,000	" " second-class masonry.	8 00	32,000	
	700	" " paving.	4 00	2,800	
2380		Foundations.			\$313,675 00
		Bridge superstructure.			3,645 00
		Road crossings and diversions.			40,700 00
					5,500 00
		<i>Contract sum.</i>			<u>\$863,520 00</u>

(149)

BATHURST, October 24th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

DEAR SIR,—I enclose sketch showing plan of western abutment and the levels taken on the rock.

2390 The contractor commenced to level off the bottom this afternoon. I told him not to touch the foundation for the centre wall, as I was uncertain whether it could be put in from front to back, as on Sheet No. 18, or from side to side, as on Sheet No. 19. I also enclose diary extracts and force returns. Force at Rough Water is also enclosed on a separate sheet.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(150)

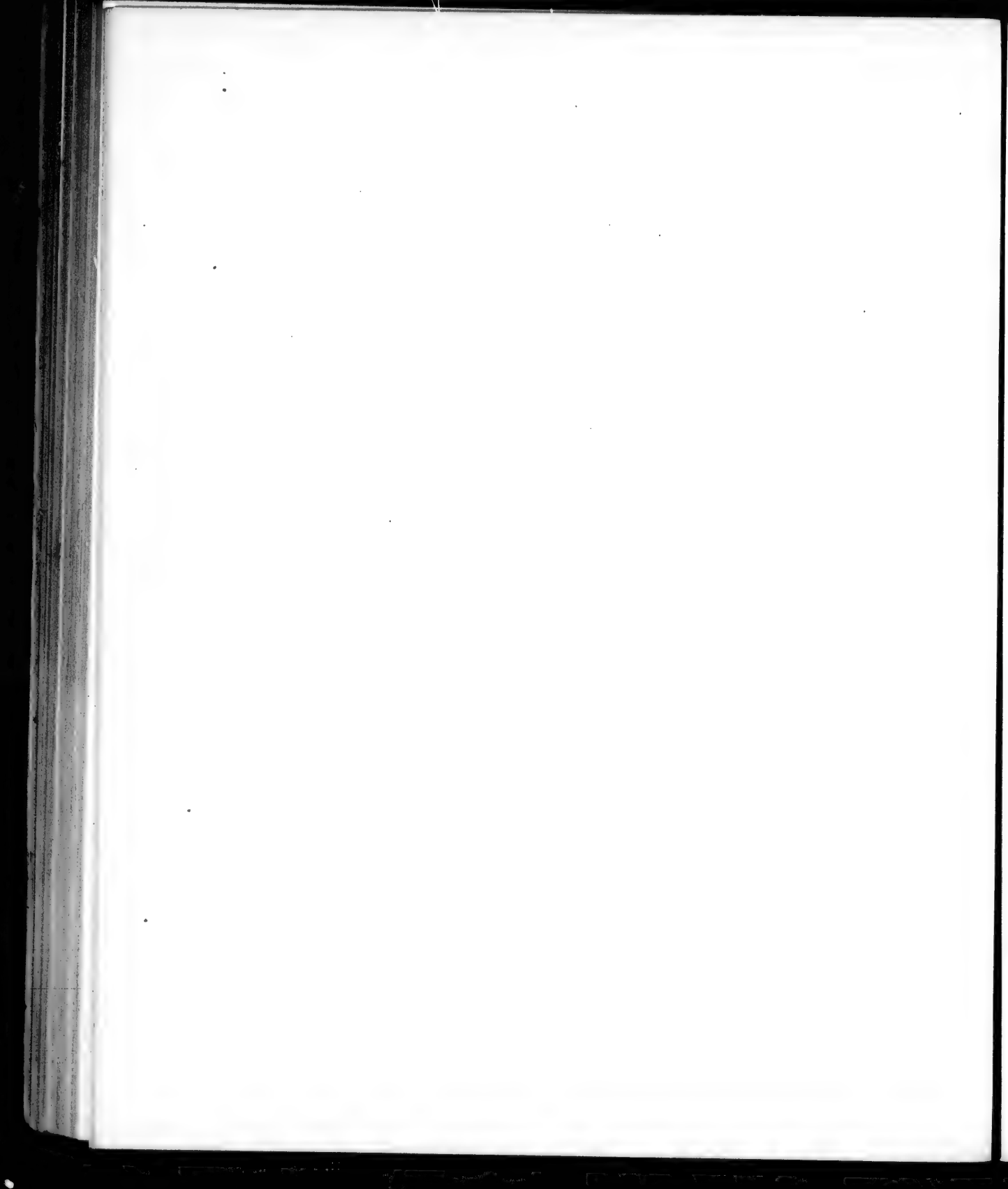
Extract from Report of Commissioners to the Privy Council,

Dated 24th October, 1870.

Nos. 9 and 15.

2400 These sections carry the line across the River Nipissiguit at Bathurst, and are in the hands of Messrs. Bertrand & Co.

The amount of work actually executed upon these contracts during the present season is satisfactory, considering the date at which the contracts were let.



The preparations for a vigorous prosecution of the work in the future are very satisfactory.

The same difficulty in reference to stone occurs on Section No. 9 as has been met with in Sections Nos. 8 and 6. The contractors for these respective sections have consequently entered into a joint arrangement for the transportation of stone, and have purchased barges, schooners, and a steam tug, and by these arrangements expect to deliver during this and 2410 next season, and as fast as it can be used, all the stone required for these sections.

Excellent stone has been found near the bridge site over the Nipissiguit. A very good granite quarry has been opened up, and about one-third of the stone for the heavy bridge had been quarried at the time of the Commissioners' visit. Lower down, another granite quarry has been opened up, from which stone is being placed directly upon the barges, and transported to different points on Sections Nos. 9 and 15.

The grading and excavations (both earth and rock) are being proceeded with, and the Commissioners believe that, with the extensive and satisfactory preparations for work, the contractors will show great progress during the next season.

(151)

OTTAWA, 24th October, 1870.

2420 The Commissioners for the construction of the Intercolonial Railway, beg to report to the Governor in Council, that they have carefully gone, with the Chief Engineer, into the question of the basis upon which the estimates for the different contracts should in future be made out, and they now submit a report from the Chief Engineer giving the basis as agreed upon, except for Contract No. 20.

The Commissioners recommend the adoption of the basis contained in the Chief Engineer's report for the present.

(Signed)

E. WALSH,
ED. B. CHANDLER,
C. J. BRYDGES,
A. W. McLELAN.

2430

(152)

Extract from Report of Commissioners to Privy Council.

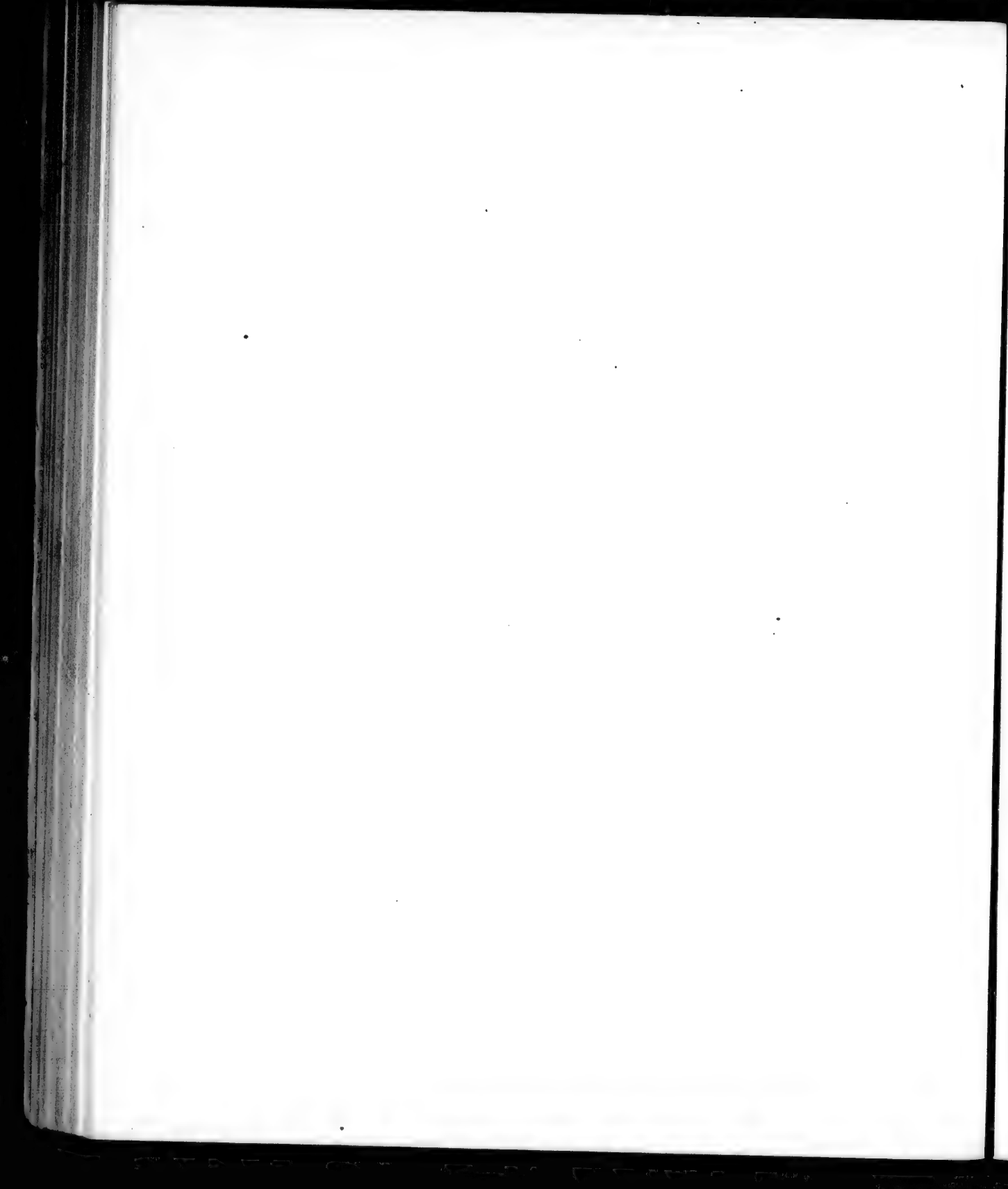
Nos. 8 and 6.

Dated 24th Oct., 1870.

The original contractors for these sections having failed, the work was re-let to Messrs. Berlinguet and Co.

A considerable amount of earth-work had been done upon these sections by the original contractors. This, with the work executed by Berlinguet and Co., places the grading in a forward state. The works upon a heavy rock cutting known as "Morrissey's Rock" was prosecuted vigorously. This and other rock cuttings will be carried on during the winter.

2440 The contractors have had difficulty in finding stone for the masonry upon these two sections; quarries have, however, been found and opened on the north side of the Restigouche



and at Grand Anse. The Commissioners believe that the security retained is far more than is required, and that it is not strictly fair or reasonable to the contractors; and they recommend that the engineer be instructed to make the returns of quantities actually executed fully equal to the work actually done, each month, and that he do not make a deduction from the schedule prices of 10 per cent for errors, omissions and contingencies.

This plan will give Government the security of the 10 per cent retained under the contract; the percentage added to the gross quantities upon which contracts were based, and nearly three weeks' work done by the time the money is paid; which is equal at the present rate of progress to about \$125,000 per month on all the contracts now let.

(153)

BATHURST, 25th October, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

DEAR SIR,—The foundation of the culvert at 474 is now down to the required depth, and I have just come in from testing it. On one side you will see by the enclosed sketch there is a very large boulder, which extends along the length of the culvert 16 feet, and along the width to about the centre of the middle wall. The bottom was full of large boulders that would average about 8ft. $\times$ 8ft. $\times$ 2ft., and, in some places, these extended below the foundation, and so had to be removed, and have since been filled up with earth from other parts of the foundation.

I was told the foundation was perfectly sound. When going over it this morning with a crowbar, I found holes where the crowbar would go down two feet, and on inquiring, I was told these holes were where boulders had been taken out of. So I gave orders to have these holes cleaned out, and the large boulder levelled off, which is to be done by to-morrow morning. I shall then have these holes filled up with broken stone and cement.

Of course, with a structure partly on rock and partly on clay, the settlement will not be uniform, but I do not think the difference will be of any importance in a box culvert.

In yours of 8th October, you say the pier of the culvert at 474 may be 2' 4". Bertrand tells me you said it might be 2' 0". I have no doubt you said so, but I have no authority to make the change.

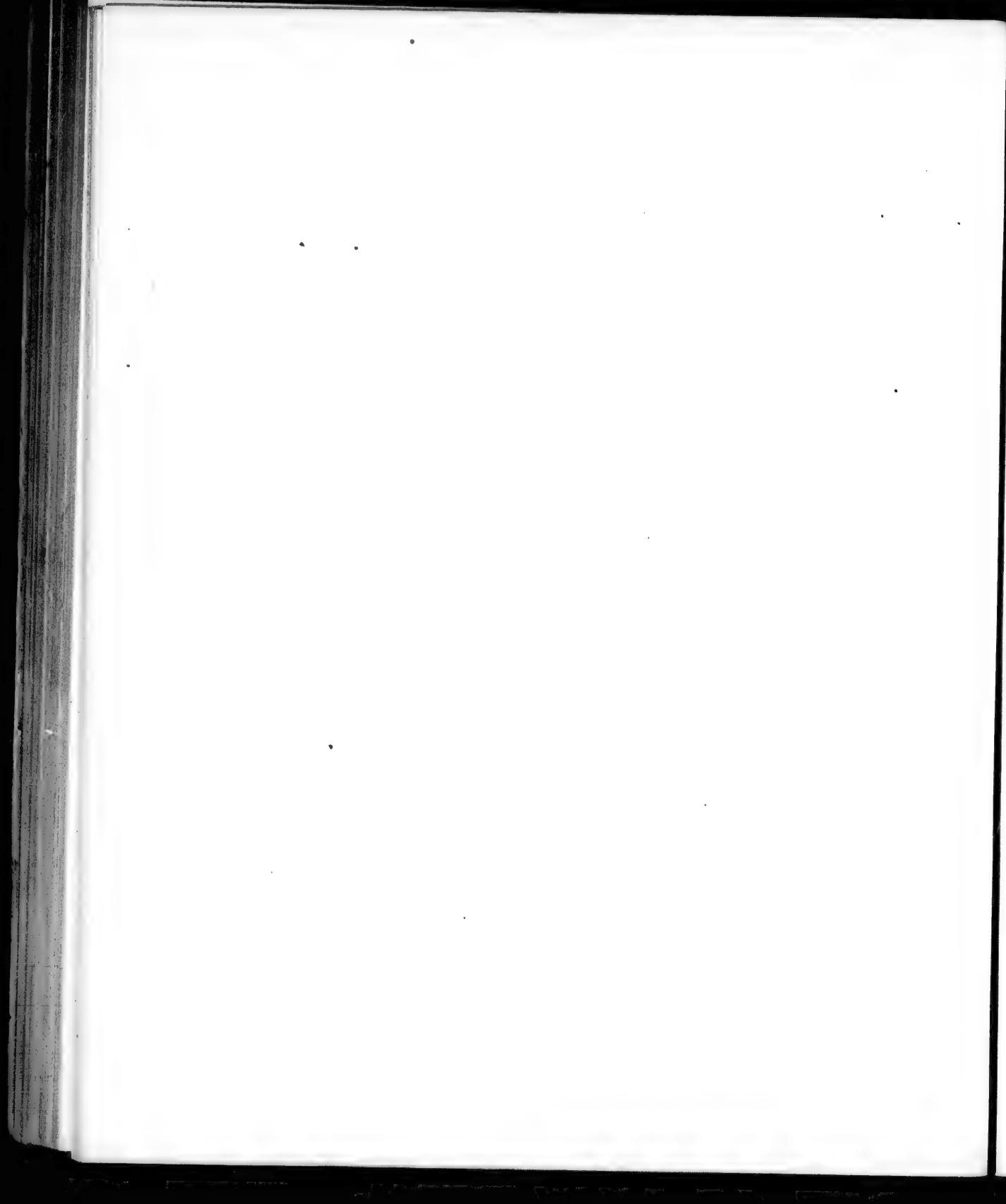
Yours, very truly,

P. ALEX. PETERSON.

(154)

Copy of a Report of a Committee of the Hon. the Privy Council, approved by His Excellency the Governor-General in Council on the 25th October, 1869.

On the recommendation of the Hon. the acting Minister of Public Works, and for the reasons given in the Report of the Intercolonial Railway Commissioners, the Committee advise that the following tender for the construction of Section No. 9 be accepted, and that



- contract in conformity therewith be given accordingly, that is to say:—*Section No. 9*, to
 2480 Messrs. J. B. Bertrand & Co., of Quebec, for the sum of three hundred and fifty-four thousand eight hundred and ninety-seven dollars (\$354,897), or at the rate of \$16,899.85 per mile.

[Certified].

(Signed) W. H. LEE,
 Clerk P. C.

(155)

Copy of a Report of a Committee of the Hon. the Privy Council, approved by His Excellency the Governor-General in Council, on the 26th October, 1870.

- The Committee of Council have had under consideration the memorandum from the
 2490 Intercolonial Railway Commissioners, reporting that they have carefully gone with the Chief Engineer into the question of the basis upon which the estimates for the different contracts should in future be made out, and they submit a report from the Chief Engineer, giving the basis as agreed upon, except for Contract No. 20, and recommend the adoption of that basis for the present.

On the recommendation of the Hon. the Minister of Public Works, the Committee advise that, as suggested by the Commissioners, the basis submitted by the Chief Engineer be adopted for the present.

(Certified) W. H. LEE,
 Clerk P. C.

- 2500 To the Commissioners of the
 Intercolonial Railway, &c., &c.

(156)

DALHOUSIE, Oct. 26th, 1870.

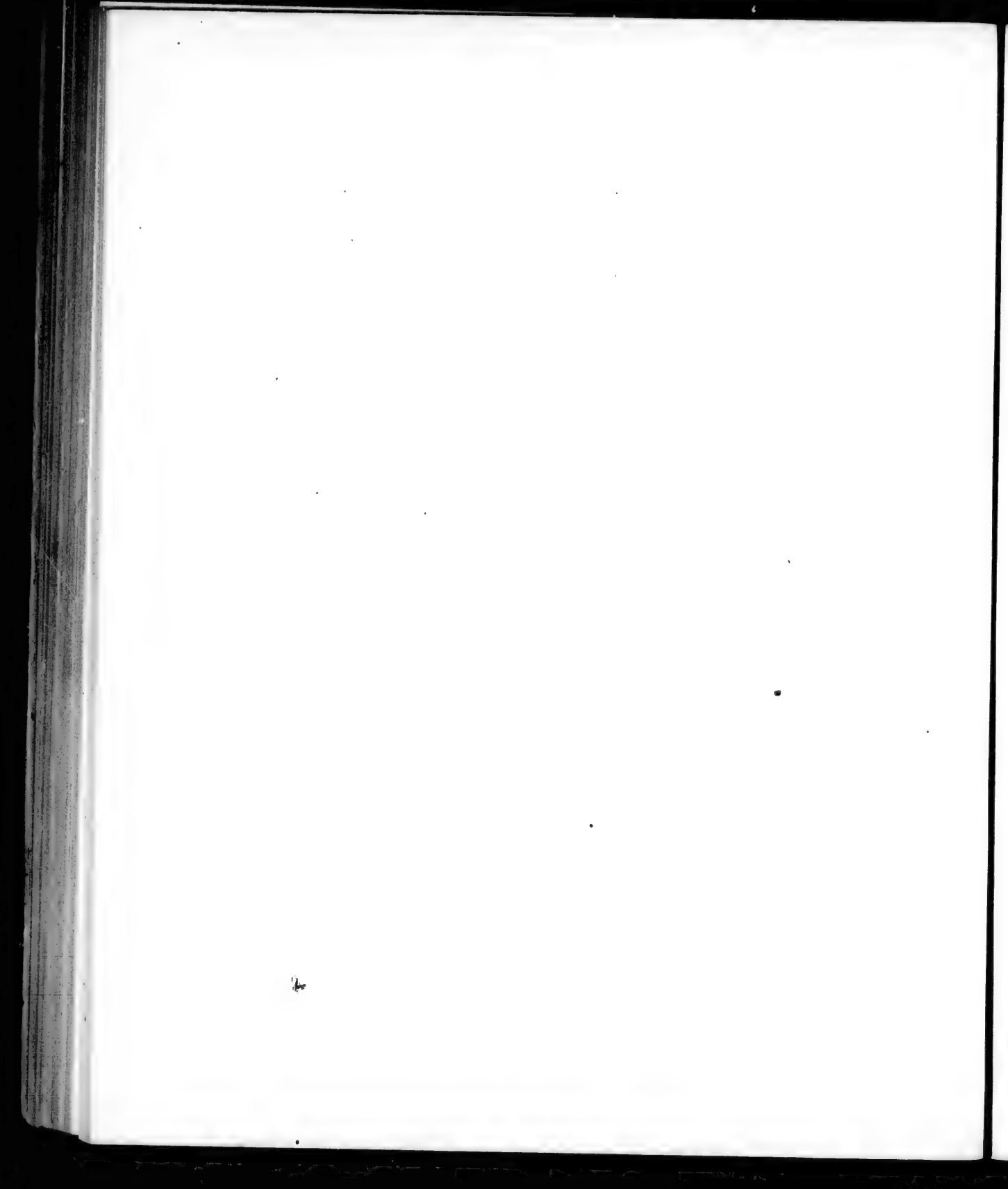
P. A. PETERSON, Esq.,

Engineer, Division N.:

MY DEAR SIR,—On my return here, I received several letters and tracings from you, but have only time to reply to the last (25th) by this mail.

CULVERT, STATION 474.

- You are quite right in dealing with the foundations of this culvert as you propose,
 viz.: Where part of the foundation is on rock and the other on clay, dig down the latter till
 2510 it gets sufficiently stiff, and if there are some places softer than others, dig holes down till you get a stiff bottom. Then, with concrete of broken stone and cement, the latter properly tempered with sand, bring the whole up to a uniform surface at the proper height to commence the masonry on. If the rock portion is higher than that, you will have to treat the rock as masonry and step your masonry into it. There will be no danger from inequality of settling in so small a structure as this, and with such fine stones.



I understand Bertrand to say, he had got out stones 2' 4" wide, but if they are only 2' 0", they will do for the pier, as it will be, in reality, first-class ashlar work.

Drawing for the abutment (west) of Nipissiguit River bridge sent down in a day or two, but I fear there will not be many more days this season before frost sets in too sharp for
2520 masonry.

Yours truly,

M. SMITH.

P. S.—Let contractor get rock in foundations, west abutment. Nipissiguit; it will be according to general drawing sheet, No. 14.

M. S.

(157)

BATHURST, October 26th, 1870.

DEAR BLACKWELL,—Your telegram of yesterday was only handed me this morning. I sent Mr. Smith, on the 24th inst., cross sections of bottom of foundation, and I now send you the original plan, shewing the position of abutment and the cross section of rock at south side of foundation; also plan of abutment and elevation in section, showing cross
2530 section at front of abutment (600 + 60), the red line shows about the bottom of foundation when levelled off. This is all for the west abutment; the best pit for the east abutment has not yet been put down. The rock under the west abutment, though apparently composed of the same materials as the hard granite in the vicinity, is quite soft, so much so, that, using a common stone-cutter's chisel and hammer, about a dozen smart blows will sink the chisel into the rock about four inches, and when taken out the rock falls into pieces, as shown by the samples I send to-night by stage.

I think the contractor will be ready to commence building on Monday next. Do you think Mr. Smith will be down by that time.

Yours very truly,

2540

(Signed)

P. ALEX. PETERSON.

(158)

BATHURST, October 27th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie:

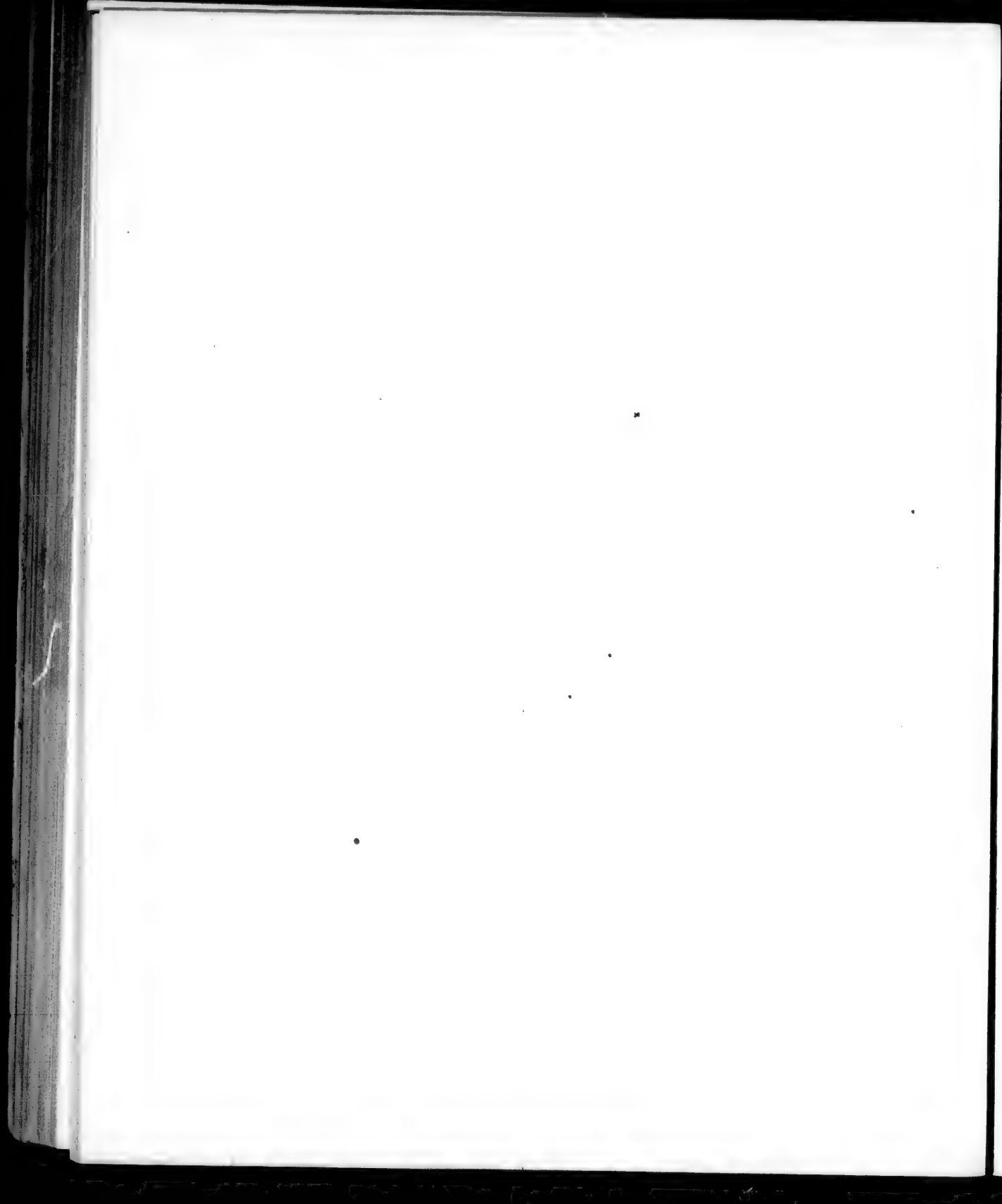
DEAR SIR,—I enclose Masonry Inspector's report for last week, and his account for horse hire up to 30th September. I send by mail to-night some samples of the rock taken out of the foundation of west abutment at Nipissiguit River; also, sample of sand taken from the river side, which contractor wants to use.

Yours very truly,

2550

(Signed)

P. ALEX. PETERSON.



(159)

DALHOUSIE, 27th Oct., 1870.

P. A. PETERSON, Esq.:

Engineer, Division N.

2560 MY DEAR SIR,—I have received your letter of the 24th instant, with tracing of sections of abutment foundation (west), and I herewith send you plan of foundations of masonry which is drawn according to sheet No. 14, general drawings, with the exception that the front wall is made five feet thick, *neat masonry*, instead of four feet as on drawings, as I think four feet rather weak, and the corbelling from the bridge seat will now be only one foot instead of two feet. You will get the rock on which the masonry is to be built reduced (scabbled) to our level, say 139.21, (which appears to be that of the lowest point) and then lay a footing course of equal thickness all round, as shown by the black lines (red lines when *neat masonry*.) The vertical joints need not be cut very fine, they will do hammered, and when laid well grounded. There must be no rubble backings, but (footing course especially) ashlar work throughout. I don't care if footing course projects a little more than shown, according as stones are cut.

Yours truly,

M. SMITH.

(160)

DALHOUSIE, 28th October, 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer:

2570 MY DEAR SIR,—Herewith I send you plans and comparative estimates of three different methods of crossing the stream and public road on Contract No. 9, Station 807.

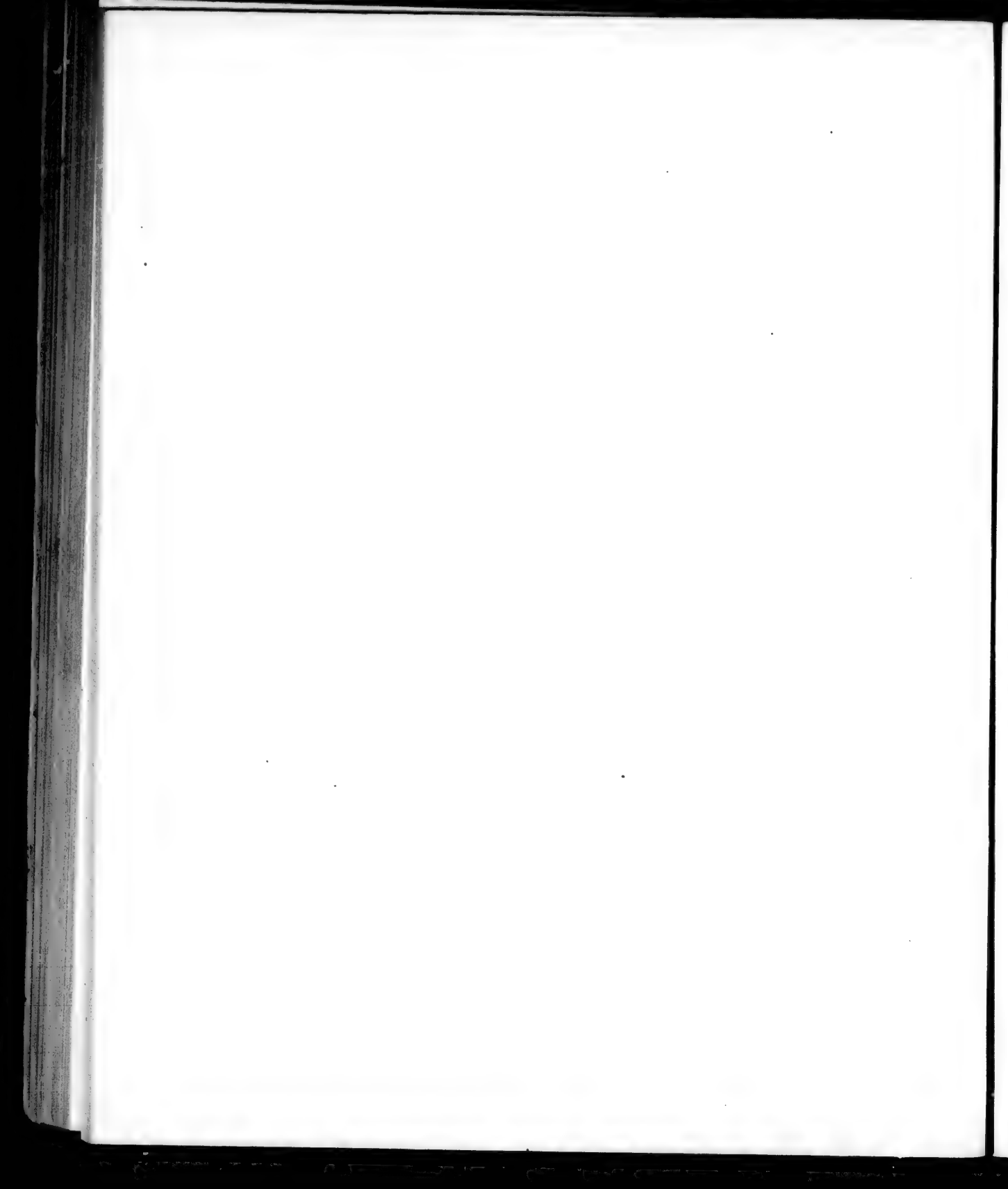
First, by constructing a 12 feet arch culvert according to schedule, but abandoning bridge over public road and substituting a road diversion and level crossing.

By this plan the present structure at public road would have to be taken down. I have therefore added to the estimate the cost of labour and mortar only, as the stone could be used for the culvert.

Second. (See general plan and drawing No. 1.)

2580 By adopting and completing the present abutments, and diverting the stream through a beam culvert constructed between them; this culvert to be lengthened at each end by out-wharfing till well clear of the slopes of embankment, and the whole to be covered over with cedar logs and earth, to form the roadway in the usual way that the public road bridges of the country are done.

This method would be economical and satisfactory if practicable, as the whole of the work already done would be made available. There would be no difficulty in rectifying the blunder made in stepping the ends of the wings. By taking out a very few stones every second course could be well bonded, and each of the two upper courses, which would not be covered by the slopes of embankment, could be well bonded separately; nor do I think the construction of a beam culvert between the abutments at several feet below the foundations of the same very objectionable, as the ground is very firm, and I think the abutments would



2590 be perfectly safe. But the great objection is that the sectional area of the beam culvert as shown on the drawing (No. 1) very little exceeds the volume of the stream as measured in the spring of 1869. The area of the culvert is 75 feet; of the volume of the stream 68 feet. The culvert cannot well be made deeper, as the paving of culvert is now the same level as the bed of the stream below; besides to make it deeper the walls would be too weak, and would endanger the abutments. On the whole, I hardly think this method practicable.

2600 *Third*, by adopting and completing the western abutment already erected (Drawing No. 2), taking down the present eastern abutment and putting a pier in its place to the proper depth, to form one side of a beam culvert for the passage of the stream; then erecting the eastern abutment at the distance of 20 feet from the pier, forming a uniform structure of two spans of 20 feet each—one span for the passage of the stream and the other for the public road.

This plan appears to me perfectly unobjectionable and orthodox. It is what I have done at Dickie's, and what I intended to do here; only I should have put the structure some 50 feet further west, and diverted both road and stream to it, by which means I should have got the road and stream further apart after they passed under the railway. As it is now, they run parallel, and close together, to the old road bridge, which necessitates some more paving, and a flatter pitch on the side next the road, as shown on drawing No. 2.

2610 This is a better method, and much cheaper than constructing an arch culvert, and diverting the road to a level crossing, even if no masonry had already been done. The reduction in masonry arises thus:

Arch culvert—masonry	531 c. yards
Beam culvert, for streams only—masonry	570 "

The above shows why an Arch Culvert was adopted in preference to a Beam; but when a Double Beam Culvert is used (for stream and road) the masonry is considerably reduced, thus:

West Abutment—Masonry	285 c. yards.
Pier	70 "
East Abutment (for Road)	100 "
Total.....	455

2620 This reduction is shown to occur through the east abutment for the road requiring to be of so much less depth and length than the west abutment (for stream), that it (the east) and pier together, gives much less quantity than if an abutment had been erected without the pier, a fact which we have made ample use of in determining the structures throughout.

Yours most truly,

M. SMITH.

(161)

INTERCOLONIAL RAILWAY, ENGINEER'S OFFICE
RESTIGOUCHE DISTRICT.

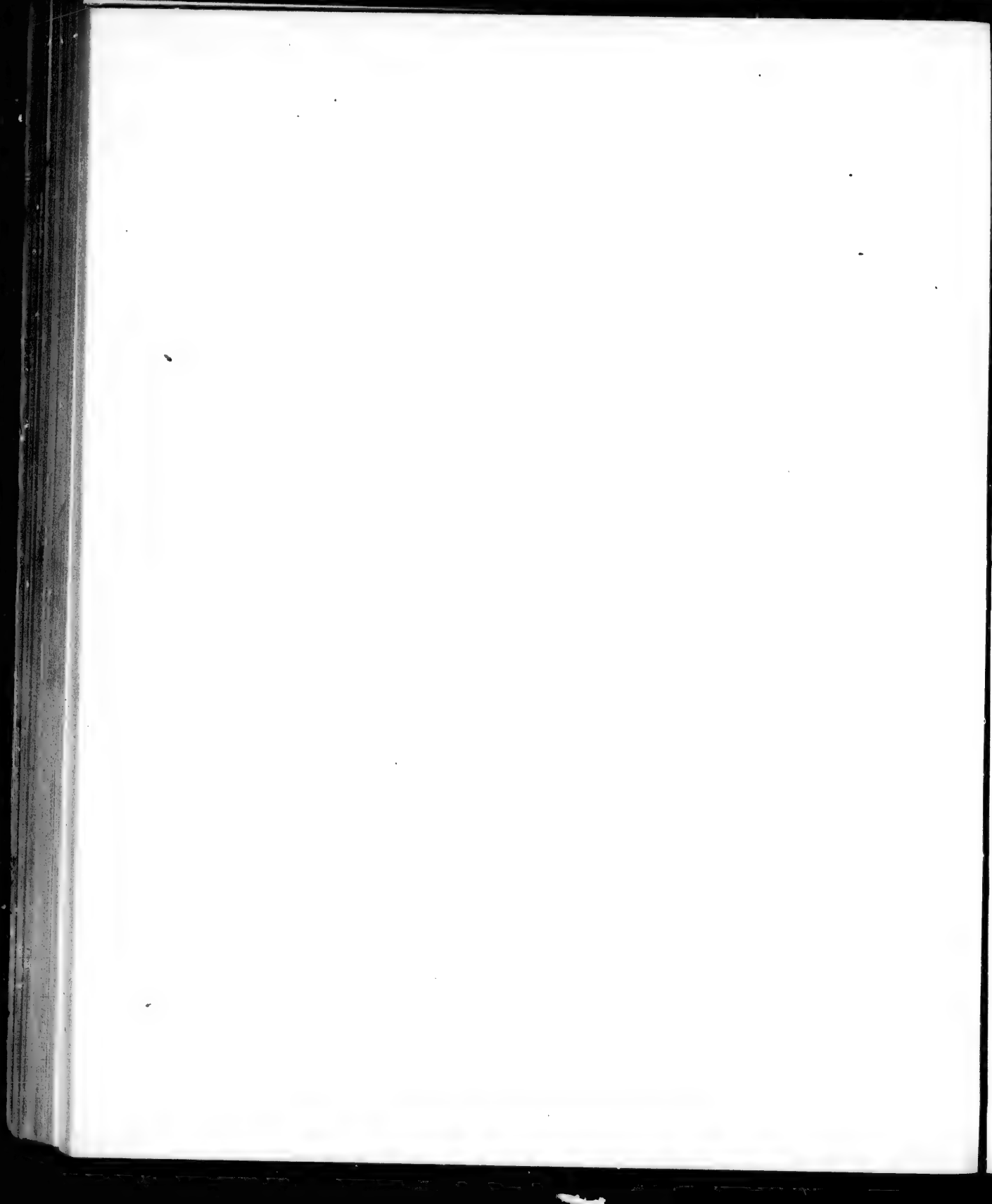
BATHURST, October 28th, 1870.

MARCUS SMITH, Esq.,

2630

District Engineer, Dalhousie:

DEAR SIR,—Yours of the 27th inst., and the enclosed plan of foundations was received this morning. I at once telegraphed you that the bottom had been stepped, and the vertical



joints had not been dressed. As I did not get any answer to say this would do, I gave foreman instructions to widen his pit, and to level off the bottom, and dress the vertical joints of the footings. I return your plan. You will see that two dimensions, that of the back footing and north footing, do not agree with the scale measurements. I suppose the scale measurements are correct. The contractor has not yet hauled any stone from the quarry, and I do not think the tramway will be ready for several days yet. I enclose sections of foundation as stepped.

2640

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(162)

OTTAWA, Oct. 29th, 1870.

C. S. Ross, Esq.,

Secretary :

As I shall be prepared to make certificates for work done to the end of month early next week, I have to request that you will be good enough to favor me with a copy of the order in Council recently passed, establishing rates for moneying out the quantities done, together with copies of any report of the Commissioners to the Government, recommending the same.

2650

Yours very truly,

(Signed)

SANDFORD FLEMING.

(168)

OTTAWA, 29th October, 1870.

MESSRS. J. B. BERTRAND & Co.,

Quebec :

GENTLEMEN,—Your letter of the 17th inst. was duly received. The basis of future estimates has been arranged by the Commissioners and Chief Engineer a few days ago. The contractors will have the full benefit of this, up to the present time, in the October estimates.

No action can be taken in reference to the alleged under-measurements, unless particulars are given by an engineer.

2660

I am, Gentlemen, your obedient servant,

(Signed)

C. S. ROSS,

Secretary.

The Commissioners were pleased to observe by your letter of 5th September to Mr. Smith, the preparations made for the vigorous prosecution of your contracts.

(164)

DALHOUSIE, October 29th, 1870.

P. A. PETERSON, Esq.,

Engineer, District N:

DEAR SIR,—I have received your letter of the 28th instant, with plan and sections of the foundations of the west abutment of the Nipissiguit Bridge.

2670

I herewith return you the plan with the dimension figures corrected.

You will perceive that the footings all round the outer face of the abutment extend six inches beyond the face of the neat masonry. You will understand that it is not absolutely necessary to have these exactly six inches; that I do not wish any stones reduced to attain this. If the contractor has stones already cut that will come an inch or two short of this or beyond, let the jobbing in one case be so much narrower and in the other so much broader.

Also, with regard to the vertical joints, if the stone is split in the quarry tolerably uniform, the vertical joints need not be hammered. I only wanted the large projections knocked off to bring the joints within an inch or so till the masonry gets above ground.

Also, with regard to the stepping in the rock. I don't mind stepping in sound rock, 2680 when it would save the contractor expense; but it generally is the reverse, and as the specimens you sent me showed the rock to be partially decomposed, I thought it would cost the contractor much less to scabble the rock to a uniform level, than to cut the quarried stone to dimensions to suit the various checks in the rock, *for the footing course must be brought to a uniform level on the top*, and it should be a good thick course. I have drawn blue lines on the sections (herewith returned) which reduces the checking all to three different levels, and which would not give the contractor much trouble; but you and your inspector must use your judgment as to the soundness of the rock; but as I said above, (unless some portions of the rock are very sound and hard) it is generally better for the contractor to start on a uniform level, and will be cheaper in the end, that is if he has quarried and cut his stone properly. You will see 2690 that I have made the neat masonry of the front wall five feet thick, instead of four feet, as shown on the general drawings. This will make but a few yards extra masonry, and will very much strengthen the connection between the front wall of abutment and retaining wall at end of bridge, which in the general drawings has to be entirely done by corbelling the former, but if the contractor has cut his stone for a four feet wall only, and objects to the five feet, I don't care much about it; you may make it four feet.

Yours truly,

M. SMITH.

(165)

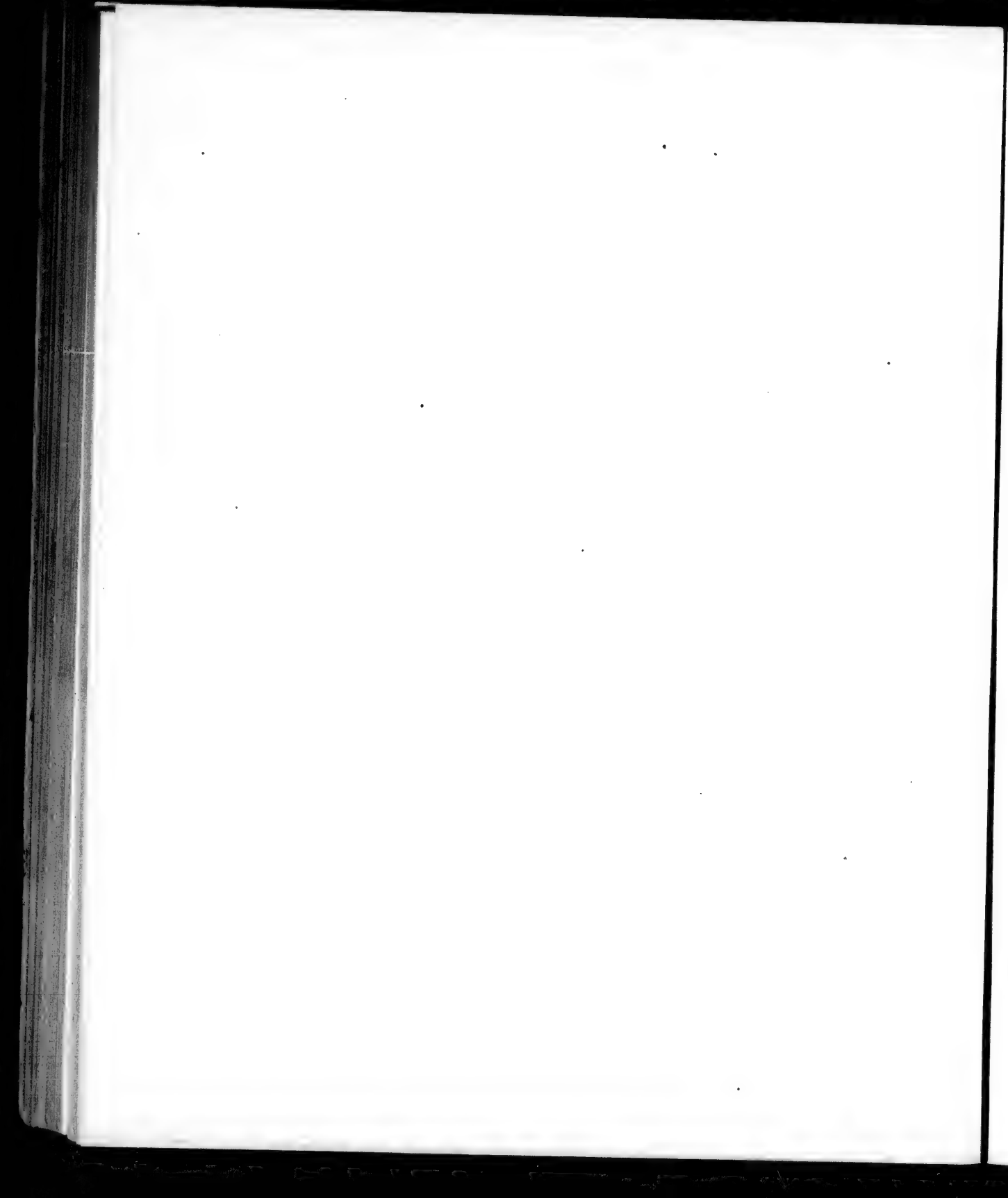
OTTAWA, Oct. 31, 1870.

C. S. Ross,

Secretary:

2700

SIR,—I have no correct copy of the prices recommended by the Commissioners as the basis for future certificates. You will therefore be so good as to send me a perfect copy as adopted.



Will you also send me a copy of the report of the Commissioners to Council on the same subject, dated 20th September. I find it referred to in a letter which I recently received from the Hon. the Minister of Public Works.

Yours very truly,

(Signed)

SANDFORD FLEMING.

(166)

BATHURST, October 31st, 1870.

2710 MARCUS SMITH, Esq., C. E.,

Dalhousie:

SIR,—Would you please to give us the plan of the cattle guards and the qualities and proportions of the timber necessary for them.

Also to give instructions about the foundations of the culvert at Armstrong's Brook and Peter's River; also the foundation for the bridge at Tête-à-gauche, and the working plans of each, and if timber is required for the above places please give us the qualities and proportions.

Also please inform us if we can construct the fence on Section 15 similar to that on Sections 6, 8 and 9

2720 We trust you may be pleased to favor us with a reply soon, as we are ready to get our stone cut, and we also wish to get the different timber required at once.

We remain,

Yours respectfully,

(Signed)

J. B. BERTRAND & CO.

(167)

November 1st, 1870.

P. A. PETERSON, Esq.,

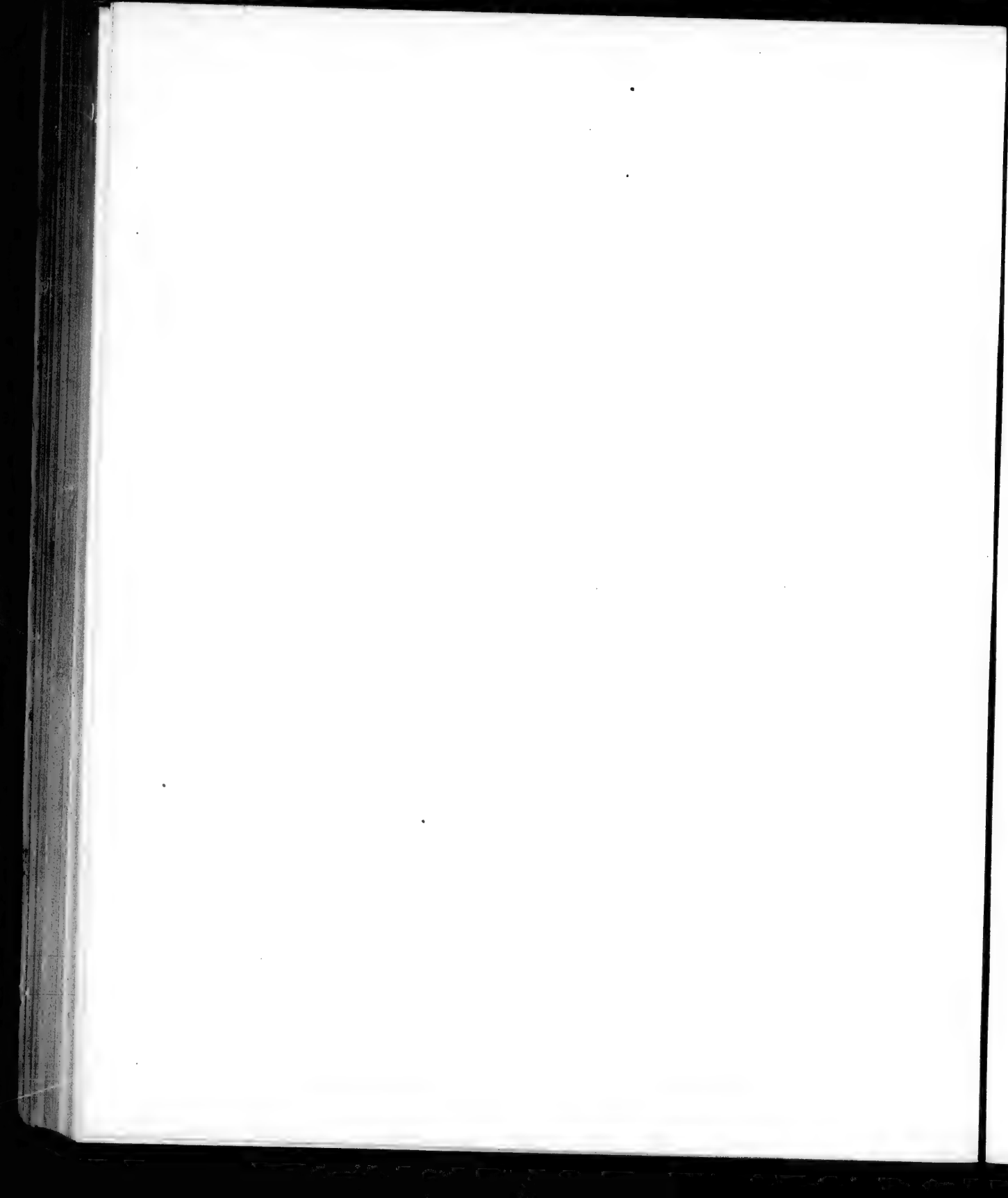
Engineer Division M:

MY DEAR SIR,—I have received your letter of the 31st ult., with a tracing of plan of proposed road division from Sta. 104 to 102.

2730 This at first glance would appear to be one of those cases in which the proposed alteration would be only for the benefit of the contractor, and he would have to pay the owner for the extra land taken. But your plan shows that if the crossing were made on the present road the slopes of the embankment for the approaches would extend beyond the limit of the road, so that the Government must buy extra land, but to a much smaller extent than you have shown. However, the difference would be very little, if any, especially if the part of the old road abandoned were given up to the owner of the land through which the new road passes. Thus:

(Sketch.)

2740 If the fence crossed $\propto$ were taken up and the land given to the owner A it would in part compensate him for the cutting up of his land, though there would still be damages for severance, and the narrow strips between the old and the new would not be of much value.



Perhaps, also, the owner B would not consent to any part of the old road being stopped up, as it gives him access to his farm at any point adjoining. Better terms might probably be made with the owner A by taking less of his land, as shown by the red dotted lines, but it would not make so good a job. Consult the valutors on that, and in all cases lay the extra land required for road diversions, borrow pit, &c., down on the plan, and give the quantities.

The widths laid down on the plan for the valutors (and quantities therefrom) are only approximate. I wish you to go carefully over the ground, plan in hand, with the valutors, and lay down the width necessary to be taken, and give the extra quantities.

- 2750 The fence should not, in any case, be nearer than 6 feet from the borrow ditches, and the break in the width should be made at the boundary between two farms thus :—

(Sketch.)

On wood lands or very poor lands, the widths should not be less than I have laid down, and there may occur cases where the ground is hilly, and yet the land very rich and valuable, where it may be expedient to take less width at one end of the farm than the other, as at A. B. Other cases where there is a deep valley of rich land, the embankment may be so much wider at the centre than at the boundaries that a greater width of land may be taken at the middle than the ends, as at C. D. E. (This may occur on J. Ferguson's farm) but generally speaking, it is better to take a uniform width.

2760

Yours truly,

M. SMITH.

(168)

2nd November, 1870.

(By Telegraph from Bathurst.)

To M. SMITH :

Although you and Mr. Fleming promised to allow us to use the granite for Nepissiguit River bridge without having the joints dressed (as you are aware it is not practicable otherwise), yet we are compelled to prepare the stone, which we are now laying in a depth of twelve feet in the ground, with joints of one-quarter inch. Would you please make the required change in specification at once.

2770

(Signed)

J. B. BERTRAND & Co.

(169)

BATHURST, November 2nd, 1870.

MARCUS SMITH, Esq.,

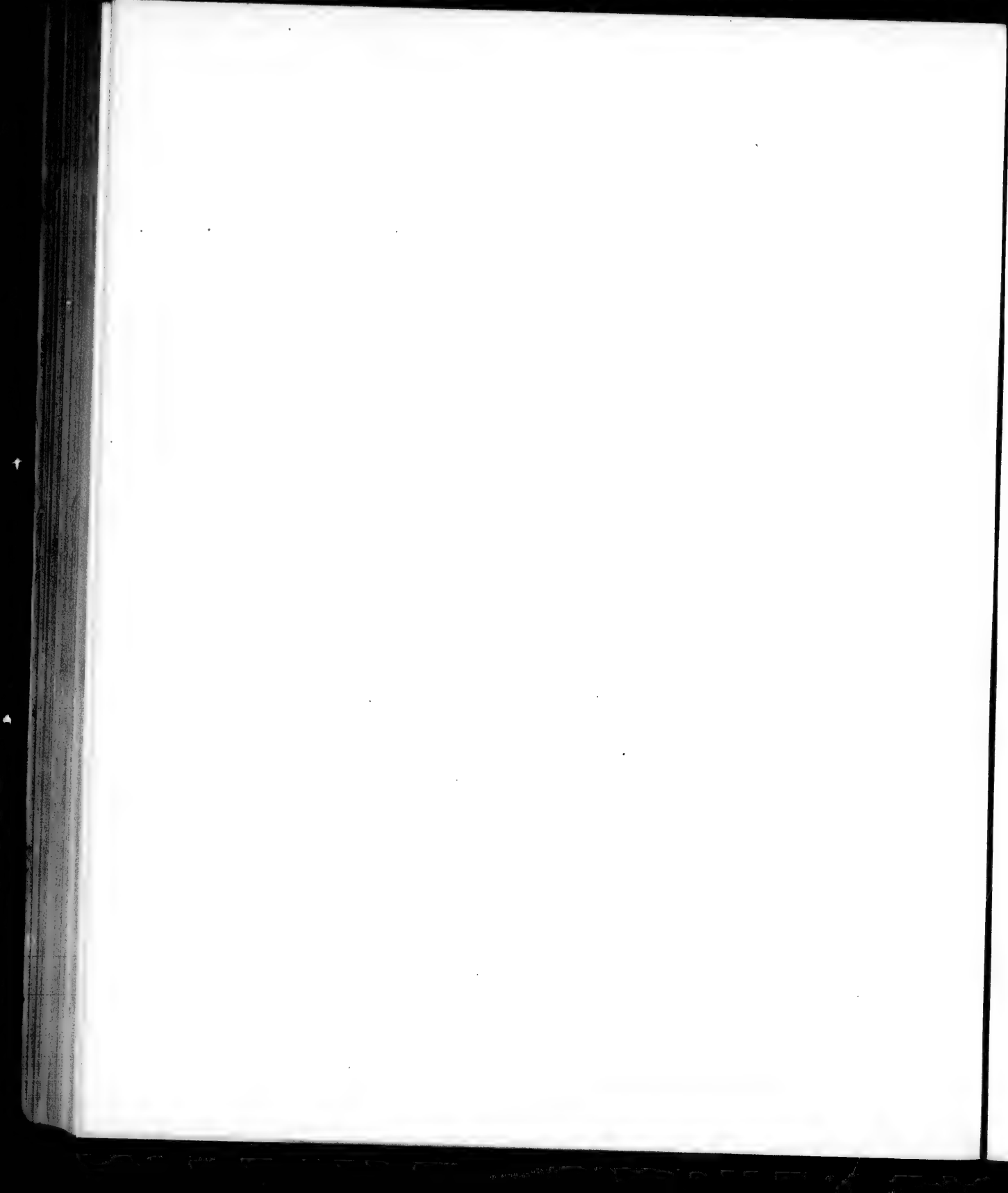
District Engineer,

Dalhousie.

MY DEAR SIR,—Yours of the 1st instant was received this morning. I shall go out and see the owners of the land affected by the road diversion at 102 and 104 with the valutors to-morrow, and would be glad at the same time to arrange about the road diversion at Station 284, the proposed plan of which I sent you in my letter of 17th ultimo.

I see that you have shown on the land plan an extra width of 88 feet at this place.

- 2780 This extra width will necessitate the removal of Pitie's house, which is only 87 feet from the centre line, and will not make as good a road, or as satisfactory a one for the inhabitants.



The valuator have lost their land plan from Station 890 towards No. 16, and they cannot give me the width taken. Can you send them another copy?

The contractor has commenced to lay the stone at the Nipissiguit Bridge.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

DALHOUSIE, 8rd November, 1870.

(170)

Messrs. J. B. BERTRAND & Co.,

2790 SIRS,—In reply to your telegram of yesterday respecting the cutting of the stone for the Nipissiguit bridge, I have to inform you that no change can be made or is required in the specification. What Mr. Fleming and myself said were merely practical hints for the workmen viz: that the beds of the stones must be cut to a true plane, not necessarily smooth but tooled with a point. The vertical joints on the outside face of the walls above ground should not show more than a quarter of an inch if they were done properly. Under ground, in the cell and at the back faces the vertical joints need only be scabbled with a proper hammer; the chisel drafts on the quoins should be three inches for a structure of this size, and certainly not less than two inches wide. I have sent a copy of this to the Engineer in charge.

2800

I am sirs,

Your ob't servant,

MARCUS SMITH,

(171)

DALHOUSIE, November 4th, 1870.

P. A. PETERSON, Esq.,

DEAR SIR,—I enclose herewith a tracing of a Pier drawn for the Nipissiguit River Bridge.

The courses of masonry have been put in more for the sake of showing the principle of diminishing the thickness of the courses from the foundation towards the top, than as details to be minutely carried out.

2810

Yours truly,

MARCUS SMITH.

(172)

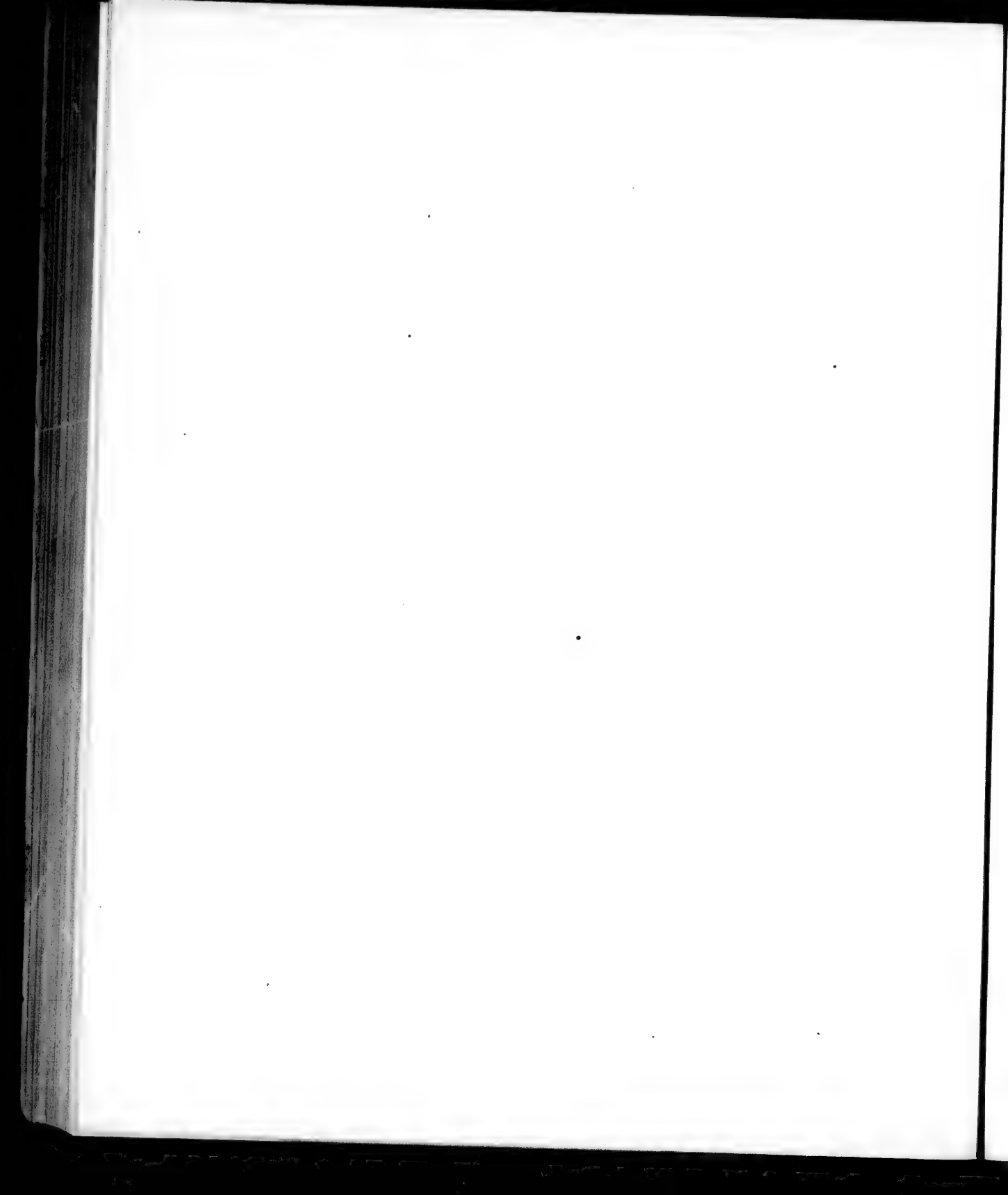
DALHOUSIE, 4th November, 1870.

P. A. PETERSON, Esq.,

Engineer Division N.

MY DEAR SIR,—Referring to your letter of 17th October, Public Road crossing Sta. 285.

There is no doubt that a bridge over railway would be the most satisfactory, but as it is not shown on the schedule of works you would have to get the consent of the contractor



- to adopt it, and in order to do this you will have to prove to him that he will not lose by it.
- 2820 You can save in the earthwork by lowering the grade till the cuttings and embankments balance including the approaches to the bridge as embankments. There will also be a little saving in masonry; for if you lower the grade 2 feet, you will shorten the culvert at Station 269 two feet. Try this; lower the grade 2 feet, and send me the exact quantities of earthwork in cuttings and embankments (including approaches to bridge 20 feet wide on top, leaving out a space for bridge say 60 feet clear) from Stations 254 to 297. I will then make an estimate of the comparative cost of the two modes of crossing, and send you instructions what to do. Meanwhile, lay down on the land plans (and send me a tracing), the diversion of the road to the Tête-a-gauche and the extra quantity of any beyond what is required for the right of way; but it appears at a glance that whether you make this
- 2830 diversion alongside the railway or between the house and barn, the quantity of land required will not equal that of the old road to be abandoned. The extra width of 83 feet was taken for the road diversion, but if you go between house and barn, alter that to proper place on plan.

FARM CROSSING STATION 325.—This will be abandoned and taken to 329-30, but the plan you send me is on too large a scale to show how this diversion is to be made. Make a plan on a scale of say 100 feet to the inch; lay down the width required for right of way; then show how Ferguson's road is to be diverted. I think you told me he has a road already leading to opposite Station 330. Does that leave any land between it and the railway?

- I fear in your diversion there will be a wedge shaped piece of land left between the road
- 2840 and the railway. This should be shown on the land plan, and probably it would be best to buy it except the land is pasture; then the severance would not matter.

Referring to your letter of the 19th October,

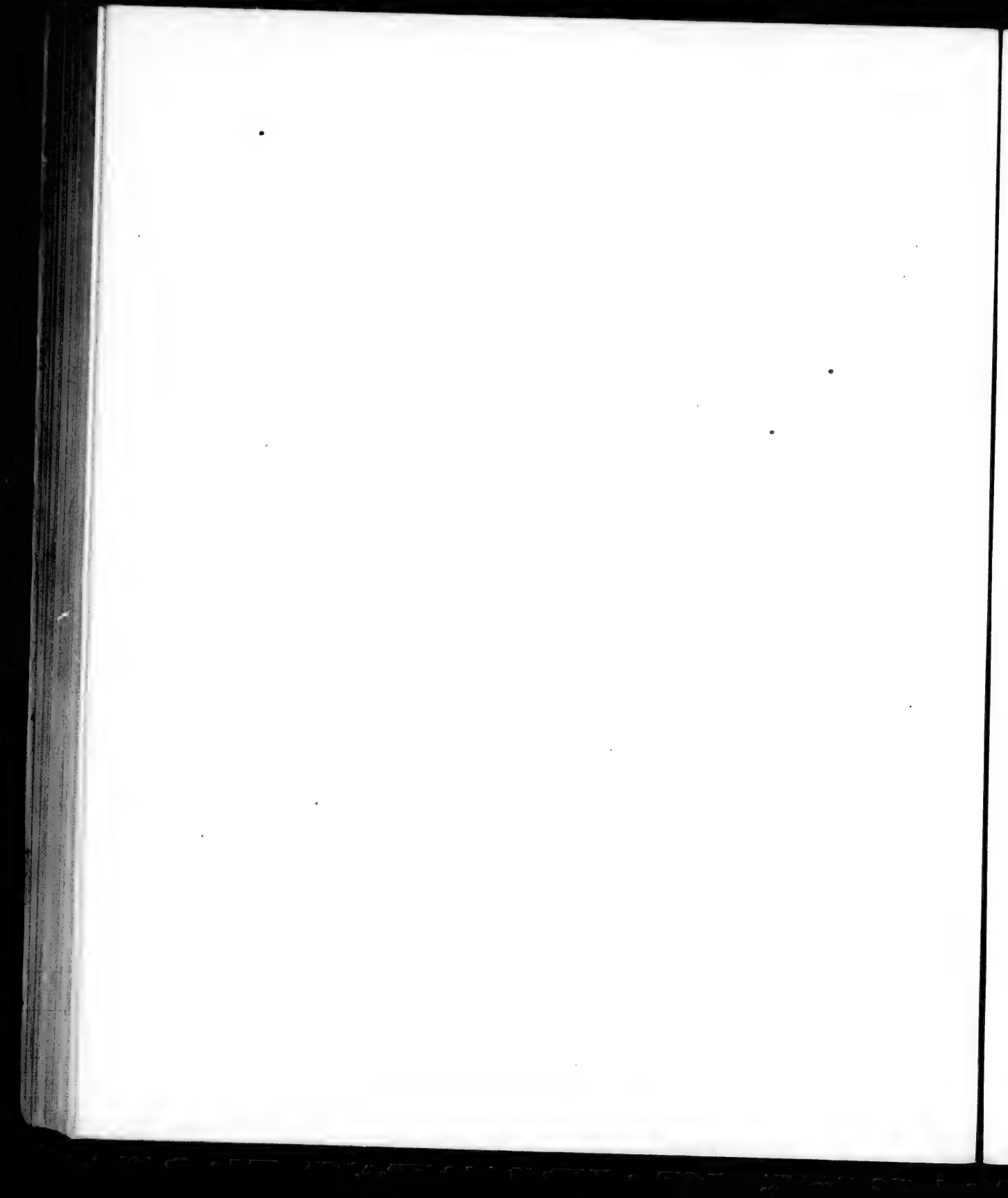
FOUNDATIONS TÊTE-A-GAUCHE BRIDGE,

- all that the contractor can require to know at present is whether timber will be required in the foundations. I suppose it is our duty to give him this information; and with this intent I have made borings in the beds of all the important streams in contract No. 6, and have now sent the boring tools up to No. 3. As regards the Tête-a-gauche, I should say no timber will be required, but probably a considerable quantity of concrete, but without boring. I cannot give the exact depth of the masonry, nor is it usual for the Engineer to do this until
- 2850 the contractor has made the excavation. The plans furnished to contractors are usually shown thus

Sketch.

The break A. B. indicating that the depth is *indefinite*, but if the contractor wishes to know the exact quantity of stone to prepare—if he will make the excavations, we will give him a plan.

SPECIFICATIONS. FIRST CLASS MASONRY.—To be practically adhered to, see copy of my letter to contractor, 3rd inst.



CONTRACTOR'S FORCE.—Please keep quarrymen, stone-cutters, &c., separate and make some arrangement with Odell about taking Rough Waters quarry.

2860

Yours truly,

MARCUS SMITH.

(174)

MADISCO, 4th Nov., 1870.

P. A. PETERSON, Esq.

Engineer, I. T. C. R., Section No. 15,

Bathurst, N.B.

SIR,—We beg leave to inform you that Mr. Gelley, our Superintendent of work for section No. 9, will immediately commence work on upper end of section No. 15. Should you think advisable that he should meet you or some of your staff, will you be kind enough to appoint place and time, and oblige

2870

Sir,

Yours very respectfully,

J. B. BERTRAND & Co.,

Per J. A. Turcotte.

(175)

DALHOUSIE, 5th Nov., 1870.

To SANDFORD FLEMING, Ottawa :

Masonry west abutment Nipissiguit bridge commenced. First course of timber laid in foundations Louison River bridge.

* * * * *

M. SMITH.

2880

(176)

7th November, 1870.

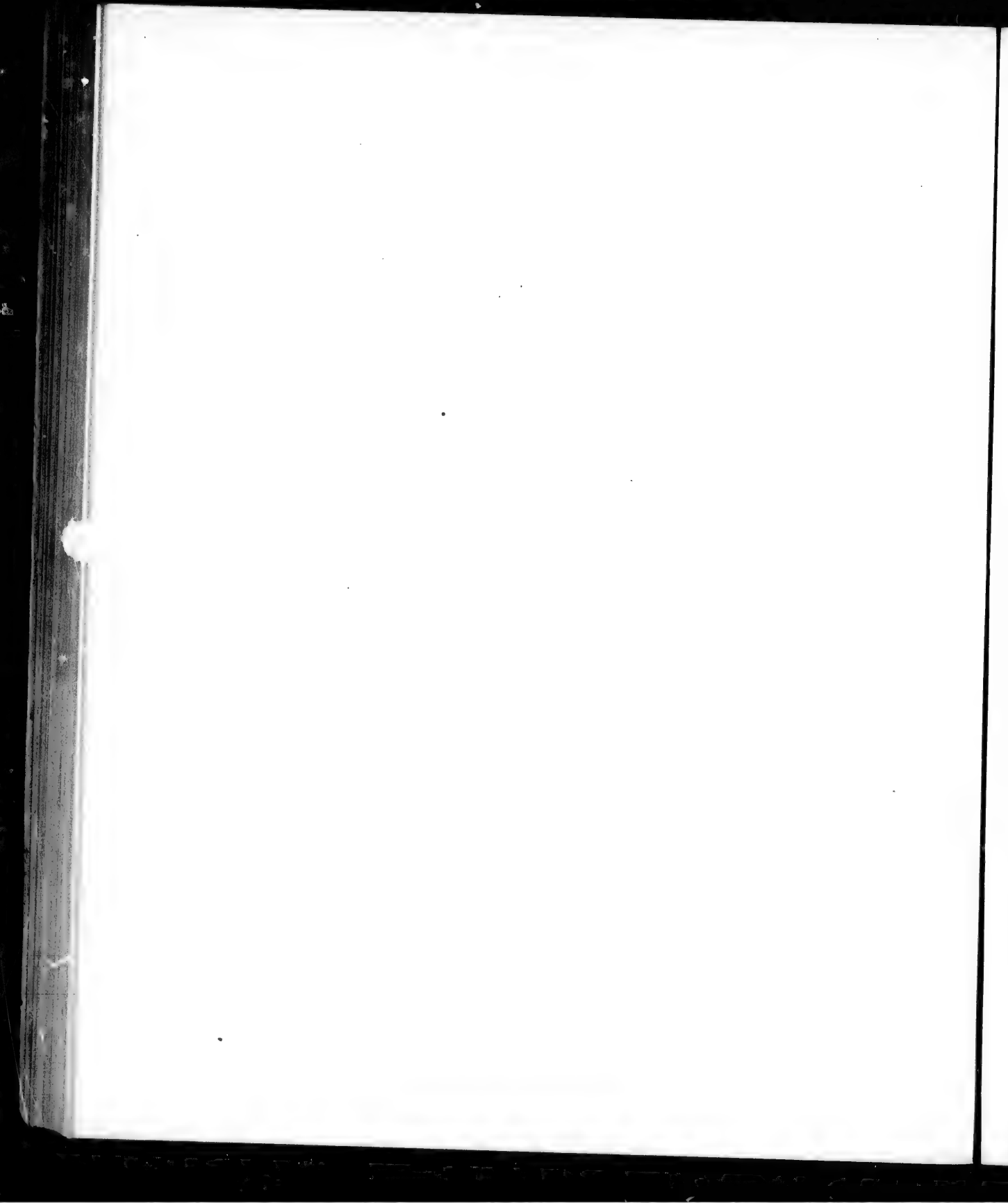
(By Telegraph from Ottawa.)

To M. SMITH.

The safes in Quebec. Robert Shaw will get them down. Bertrand asked change in specification for Nipissiguit River Bridge. Having consulted Commissioners, no change could be made. I should like, however, as far as possible, to make work to suit the quarries, seeing spirit of specification carried out.

(Signed),

S. FLEMING



(177)

November 7th, 1870.

Messrs. J. B. BERTRAND & Co.,

2890

Contractors Sections 9 & 15.

SIRS,—Herewith I send you a plan of cattle guards. The bottom sills will be of cedar; the other timber may be of pine, if you find it difficult to get cedar large enough. The timbers will be fastened at the corners by a pin of oak, tamarack or cedar, 2 inches diameter. I do not think any timber will be required at Armstrong's Brook, Peter's River, or the Tête-à-Gauche. The masonry will be constructed according to the general plans referred to in the schedule of works and quantities upon which the tenders were based, viz.:

Armstrong's Brook (20-ft. arch culvert),.....	Sheet No. 21
Peter's River, ".....	" No. 21
Tête-à-gauche Bridge, five spans of 100 ft.,.....	" No. 18 & 19

2900 The working plans will be exactly similar to the general drawings, except in the depths of foundations, which we cannot tell exactly till you have made the excavations. Whenever you are ready to commence these, the Division Engineer of each section will have the work staked out for you, and you will be furnished with a working plan when you have made the excavations. You can have no difficulty in getting your stones out according to the general drawings, on which all the dimensions are given except the thickness of the courses, which is left to your choice within the limits specified (General Specification); but the division engineers or inspectors of masonry will give you any explanation, should you be at a loss to understand the drawings.

You may construct the fence either according to the general specification of the Chief Engineer, or make it a cedar log fence, according to the specification furnished you for that kind of fence.

I am, Sirs, your obedient servants,

M. SMITH,

District Engineer.

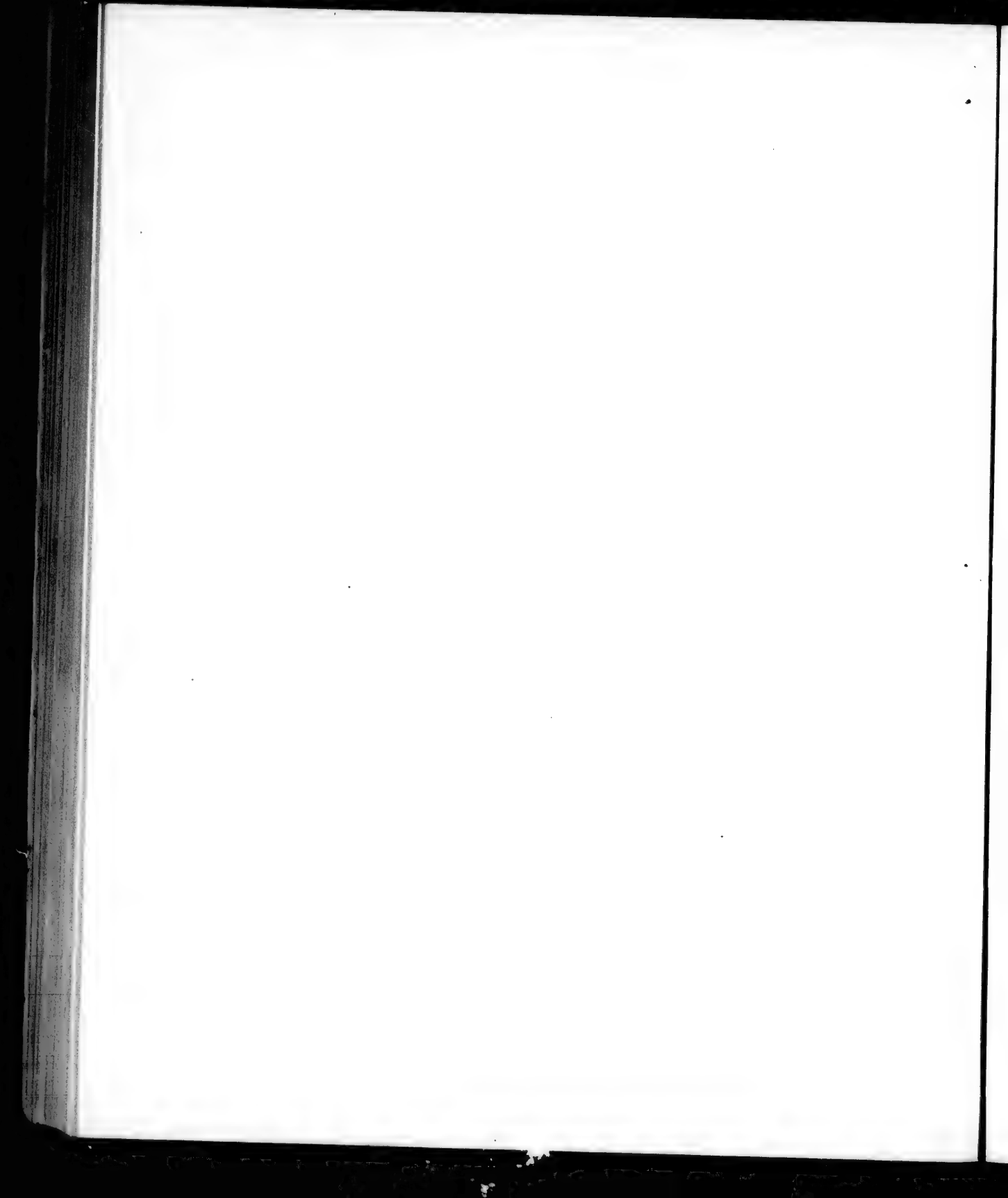
(178)

BATHURST, November 9th, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie:

MY DEAR SIR,—Yours of the 5th inst. was received this morning. I shall make out an approximate estimate of the quantities of timber necessary to make the timber crossings, &c., mentioned, and hand it to the contractor. Of course he will not attempt to put any on this season, but he wants to get the timber out. In answer to yours of the 4th inst., I now enclose you a tracing of the proposed road division at 285, and the total quantities taken from Raphael Haché and Lazare Pitré. As we only take 83 feet, no more land is taken from Pitré now than when the road passed beside the Railway, and as he gets back the old road A. B., he should give in return the new road through his land; but I suppose he will not be inclined to do this, and as the quantity is small I suppose the valuers have not taken it into account. In Haché's land the dotted line is as on the ground at present. I suppose the



Surveyor can explain it. I told Bertrand some time ago, that it was proposed to make a bridge at 285; and that as we had made so many reductions in his favor, he must build this bridge, and he agreed to it, at least, did not object.

I have had the quantities taken out for lowering the grade one foot and two feet. One foot will about balance. I shall send them to you, in a day or so. Do you purpose visiting Bathurst this month? I should like you to see the cement I have had tested, the masonry-dressed stone, &c.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(179)

BELLE DUNE, 9th November, 1870.

MARCUS SMITH, Esq.,

MY DEAR SIR,—Mr. Bertrand called yesterday to inquire what style of cattle guard would be required where a public road crossed a rock cut.

Will you please inform me on the subject; and at the same time send me a specification as regards the kind of timber to be used in the ordinary guards, according to the general plan, so that I may hand him a copy.

I fear it is almost impossible to procure pine on this Division, and what there is would be only sapling growth. The chief wood here is spruce and cedar: the latter will be difficult to find *sound* of the proper dimensions; yet it may be found in some places.

Mr. Bertrand requested also, that he might be furnished with the plan of the 20 foot Arch Culvert at Armstrong's Brook as early as possible, in order that he might commence dressing stone for it.

2950 Please send me some paper suitable for the profile on the enlarged scale.

I remain, yours very truly,

(Signed)

CHAS. ODELL.

(180)

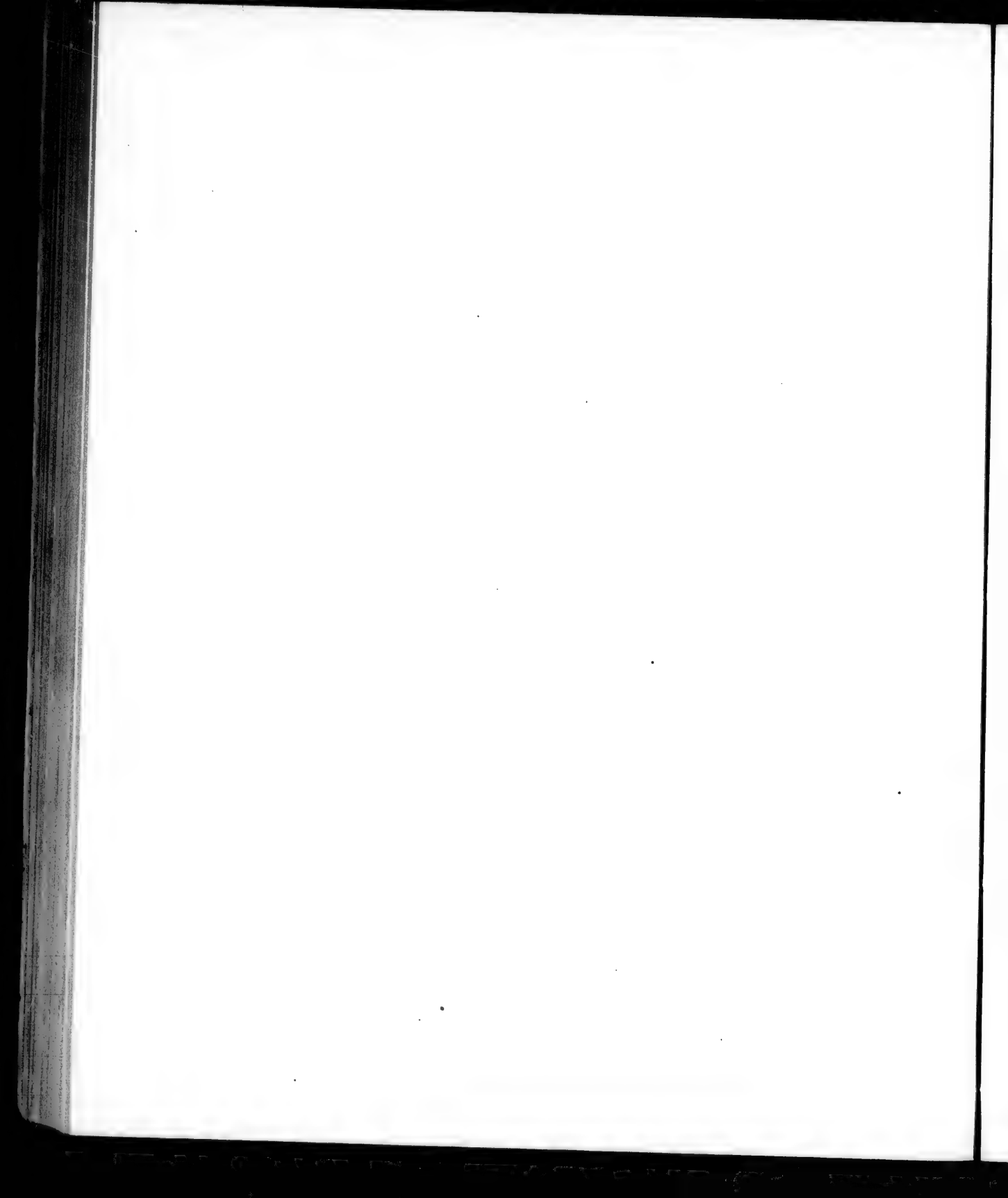
OTTAWA. Nov. 10th 1870.

S. ROSS, Esq.:

Secretary.

SIR,—I now enclose certificates No. 127 to 145 inclusive made up in accordance with the terms of a Minute in Council dated September 20th, also certificates No. 146 to 163 inclusive, calculated at the schedule rates established by Minute of Council dated October 26th on the recommendation of the Commissioners.

2960 With regard to certificates No. 127 to 145, you are aware that although they are only now issued, the amounts were made up by me during the Commissioner's late tour, and a memorandum thereof handed to you in Halifax on 7th October last. The certificates were prepared under directions received from the Honorable Mr. Langevin, Minister of Public



Works, who telegraphed to me a Minute of Council of date September 20th. I find the Minute of Council was passed on a report of the Commissioners of the same date, in which they represented to the Government that the amounts certified by me previously were very much less, some 15 or 20 per cent, than the value of the work really done; they further represented that the measurements of the work have to be begun about the middle of the month, and the amount of the certificates is not paid until about 10 days after the end of the month for which the certificate is made out, so that the Government has always nearly three weeks' work done beyond the amount of the certificates when the money is paid for them.

It is natural and proper that I should desire these statements to be corrected. I have always instructed those under me to have the work measured up for Progress Certificates not at the middle of the month but at the very end of the month, and in the event of any measurements being made a day or two earlier, an allowance must be added sufficient to cover the work done up to the last day of the month. This is the general rule and it has been invariably carried out as far as I know.

I adopted all other means which I considered necessary to make the certificate fairly and fully represent the correct value of the work actually done up to the end of each month, under the terms and conditions of the contract, and in this I believe I generally succeeded.

I desire also to correct an impression that appears to be conveyed in a communication from the Commissioners to the Government dated October 24th ult. This communication reads as if it fully concurred with the Commissioners in a change in the system on which the certificates should be made out, and that I sent them a report, furnishing and recommending a new basis for making out future certificates for work done on each contract. It may not be the impression intended to be conveyed but it may be so read, and I desire therefore to explain that the new basis originated with one of the Commissioners, and that the schedule of prices for each contract (being the basis referred to) although prepared in my office, were prepared at the dictation of that gentleman and at his special request were when completed transmitted by me to you.

My only object is to set myself right in this matter, and I need scarcely add that I shall be very happy to make up my certificates as it is done at the schedule of rates now established, or which may hereafter be established, the responsibility of deciding the terms and rates of payment to contractors not resting with me.

Yours very truly,

(Signed)

SANDFORD FLEMING.

(181)

DALHOUSIE, November 10th, 1870.

SANDFORD FLEMING, Esq.,

DEAR SIR,—I herewith enclose tracings from the drawings I have had prepared of the west abutment, and an average pier for the Nipissiguit River bridge. You will perceive that I have had the front wall made five feet thick, instead of four; which, although not adding very materially to the quantity of masonry, the extra quantity being 11.2 cubic yards, yet will very much strengthen the connection between the front wall of the abutment, and the

ballast and retaining wall, which, in the general drawings, is shown to be entirely done by corbelling the former.

I shall be glad to know as soon as possible if the work shall be carried out in accordance with these drawings.

Yours truly,

(Signed)

MARCUS SMITH.

3010 (182)

BATHURST, Nov. 15th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I enclose diary extracts and force returns, with quarry men separated from laborers. The force employed at Rough Waters' quarry, No. 2, is enclosed on a sheet by itself, as the contractor cannot tell me what proportion of it is for No. 15. I have given the force at No. 1 quarry to Mr. Odell. I expect that by next week the contractor can tell me what contract each quarry is for.

3020 Did you say those green cross section books were to be made up according to original grades and widths, or shall I wait and put on any changes of grades, bases, slopes, &c., that may be made? Would you please look at the grade between Stations 137 and 171 $\times$ 66. I think this might be lowered a little with advantage to the contractor, without detriment to the work. It will be difficult to make this up from side ditches, as the ground is rocky. I shall walk over it to-morrow if it does not rain, and have some test pits sunk along where the ditches will come. I would make this grade of .75 per 100. Commence at 139 and end at 173 $\times$ 66.

I suppose you will send me the proposed changes of grade between Stations 80 and 137, in a few days.

Yours very truly,

(Signed)

P. ALEX. PETER SON.

3030

(188)

DALHOUSIE, 16th Nov., 1870.

MESSRS. BERTRAND & CO.,

Contractors Section No. 9 :

3040 SIRS,—As there is a large quantity of masonry in the culvert at Armstrong's Brook, and the foundations would be expensive on account of the mill-dam. I think it is worth trying if the water could be passed under the railway through a tunnel, cut through the rock on the banks of the stream. It would involve but little expense to try if this were practicable, and if it were found to be so the work could be executed during the winter, which would be a great boon to you, as your masonry is so much behind. It will only be necessary to cut a trench across the railway at Station 10 to about 10 feet beyond the fences on each side, and down to the surface of the rock, and at right angles to this three other trenches leading towards the stream. These will also have to be cut down to the surface of the rock.

One of these will be on the centre of the railway, and one on the outside of each fence. The following diagram will show the position of the trenches in red colour, the centre of the railway and the fences being shown in black, thus :

(Sketch)

The trenches to be cut now would be A. C. C. D. B. E. A. F. If the tunnel were practicable it would be on the line A. C. (or a parallel line nearer to the river), and the dotted lines at each end would be open cutting, the material from which would help to make
 3050 up the embankment across the river, for which there is over 15,000 cubic yards to borrow. If you will make these trenches, they should be commenced as soon as possible.

Your obedient servant,

MARCUS SMITH.

(184)

DALHOUSIE, 17th Nov., 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer :

MY DEAR SIR,—I have just received the list of the staff as re-organized by the Commissioners. I am sorry to see that in every case one assistant has been taken off each division. This will make it difficult in some cases to struggle through the winter, but as my
 3060 office staff is strong, I may be able to send assistance now and then to very weak parties.

The worst case is No. 9 Contract, which I don't think it possible to work as now arranged. The staff retained on this division is as follows :—

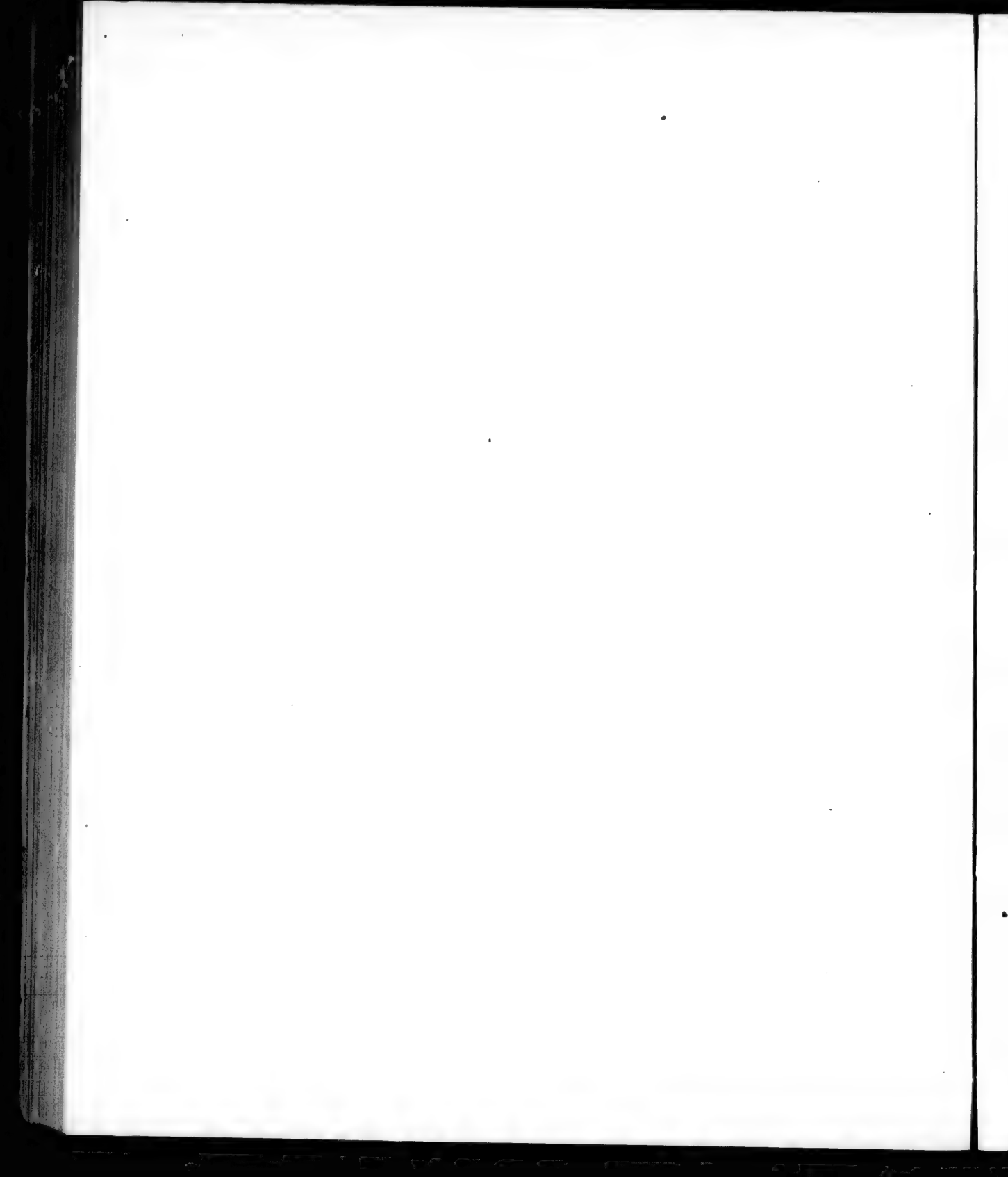
F. Bolger, Assistant.

F. McMillan and W. E. Fish, Rodmen.

I am informed that Mr. Bolger has never before been engaged on any engineering works, has made blunders here. Contractors complain of the losses they suffer in this respect, though they don't mention the names of the parties to me. Neither of the rodmen are capable of setting out or measuring any works, so that the whole will devolve on Mr. Odell, whom you know is not very energetic, and lives six miles away from the nearest
 3070 portion of his work, as he could not get a house on the division.

Mr. B. McConnell, an assistant to be discharged, has had some experience in engineering, has done the greatest portion of the work on Contract No. 9 up to this time, and was admitted by all to be one of the hardest working and most deserving assistants on this district. Nothing that has occurred before has been so discouraging to the staff generally as his dismissal and a far inferior man retained ; they all see that zeal will not serve them.

I informed you in the spring that Contract No. 18 was in rather a crude state, being little better than a trial location made late in the autumn. Not much could be done to improve it this summer on account of clearing operations. Thompson is now retracing the line ; he found McMillan very useful and energetic. He (McMillan) is now to be rodman on
 3080 Contract No. 22 (which will have rather a strong staff for a straight line). Thompson wishes he could be retained as rodman where he is, and let Nicolle (his other rodman) go to No. 22 ; he thinks he could then pull through. I have written to him that I would mention



the matter to you, but I had little hope of anything being done, unless the parties agree mutually to change places. I wish you could do something for McConnell, if only a promise for next spring. Grant (No. 19) is terribly weak—has *no assistant*, and only one rodman. Cannot possibly do the work in spring, if even in winter.

Yours truly,

MARCUS SMITH.

(185)

Madison, 17th Nov., 1870.

3090 P. A. PETERSON, Esq.,

Engineer, I. C. R., Section No. 15,

Bathurst.

SIR,—Would you be kind enough to provide us with plans and proportions particular to each of the over railway bridges for Section No. 15, Stations 337-50, 460 and 584.

And oblige, Sir,

Yours very respectfully,

(Signed)

J. B. BERTRAND & Co.

Per J. A. Turcotte.

(186)

BELLE DUNE, 17th November, 1870.

3100 DEAR BOLGER,—I herewith send you a list of some alterations in grades made by Mr. Smith, on the 11th ultimo.

It will be necessary to have the work (already set out) altered in accordance with them, (especially where the contractors are now at work or likely to commence) at once. They are as follows :

	From Station.	Formation.	Rise per 100 feet.	Fall per 100 feet.	To Station.	Formation.	
3110	80	195.00	0.33½		98	201.00	
	98	201.00	0.80		128	225.00	
	128	225.00	0.33½		155	234.00	
	155	234.00	Level.		157	234.00	
	157	234.00		0.50	183	221.00	
	183	221.00		0.20	198	218.00	Join old grade here.
	198	218.00		0.80	221+75	199.00	As before.
	366	225.00		0.55	406	203.00	
	406	203.00		0.40	426	195.00	Join old grade here.
	426	195.00		0.50	464	176.00	Old grade.
	535	184.00		0.75	549+66	173.00	
	549+66	173.00		Level.	553	173.00	
	553	173.00	0.60		566+83	181.00	
	566+83	181.00	Level.		574	181.00	Join old grade.
3120	574	181.00		0.50	590	173.00	Old grade.

These, I believe, are all the proposed changes. I find they are at work near 895. It will be as well to give them the new grade there to work by.

I remain, yours truly,

(Signed)

CHAS. ODELL.

(187)

BATHURST, Nov. 18th, 1870.

MARCUS SMITH:

District Engineer,

Dalhousie:

3130 MY DEAR SIR,—I have just come in from walking over the line from Zero to about Station 160. You mentioned when here that you thought of lowering the grade from Station 80 to 187. I find that from 80 to about 98 the ground is very soft and spongy, and covered to the depth of about a foot with moss and black mould, and from 95 to 108.60 the bank is made up to grade.

3140 It is also up to grade from 107.30 to 114, and close cut and grubbed on to 129. From 110 to 187 the soil is wet and covered with black mould and moss. Referring to my letter of the 15th instant, I have walked over the line between 187 and 171.66, and find there will be no difficulty in getting material to make bank up to present grade line. The rocky points do not extend any distance worth mentioning, and the grade need not be lowered on account of any scarcity of material. Men are now sinking small test pits or sounding with bars, and I can send you to-morrow the result. The soil between the above mentioned points is generally wet and covered with about a foot of black mould.

I have the cost of work made up, but not quite ready to send you. To the end of October, the work has cost \$20,200; to the end of September, \$12,730, and the estimate amounted to 9,851, a loss of about \$8,000. You have not sent me copy of certificate for October.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(188)

DALHOUSIE, 18th November, 1870.

3150 CHARLES ODELL, Esq.

Engineer, Division M.

MY DEAR SIR,—Herewith I send you copy of a letter from the Chief Engineer, referring to *general instructions* (Books 1, 2, 3 and 4), to which I beg you will pay particular attention.

As you may not have the profile on the large scale ready (Section 12, Book 2), you will at present indicate (very exactly) the work executed, by coloring, in the manner described in the Chief Engineer's letter herewith, the profile on ruled paper that you are now using, and complete the profile on the larger scale during the winter months.

But first you will please furnish me without delay a drawing of some one structure
 3160 built on your division (say culvert at Station 787) with all information relative thereto, in
 the manner described in the second page of the Chief Engineer's letter herewith, and for the
 purpose stated in the following copy of a telegram just received from the Chief Engineer :—

[Copy.]

“ Instruct Engineers in charge to send here, and without delay, drawings and all infor-
 mation of any one structure built on each section ; any scale. I want to prepare here sample
 drawings, uniform, to have instructions in my letter, 16th December last, carried out.”

You had better send drawing to me to examine, before it is sent up to the Chief
 Scale 4 feet to an inch would, I think, be convenient ; show end elevation, plan, transverse
 and longitudinal section ; you need not show the latter the whole length, but only each end,
 3170 with a *break* in the middle, but mark length in figures—or if you put in on a scale of 8 feet
 to an inch, you could then show it complete.

Yours truly,

M. SMITH.

(189)

DALHOUSIE, 18th November, 1870.

P. A. PETERSON, Esq.,

Engineer Division N. :

MY DEAR SIR,—Herewith I send you a copy of letter from the Chief Engineer,
 referring to General Instructions, (Books Nos. 1, 2, 3 and 4) to which I beg you will pay
 particular attention. As you may not have the profile on the large scale ready, (Sec. 12,
 3180 Book 2), you will at present indicate (very exactly) the work executed by coloring, in the
 manner described in the Chief Engineer's letter herewith, the profile on ruled paper that you
 are now using, and complete the profile on the larger scale during the winter months.

But first you will please furnish me, without delay, a drawing of some one structure
 built on your division, (say Culvert at Station 475) with all information relating thereto, in
 the manner described on the second page of the Chief Engineer's letter herewith, for the
 purpose stated in the following copy of a telegram just received :

[Copy.]

“ Instruct Engineer in charge to send here, without delay, drawings, and all other
 information of any one structure built on each Section, any scale. I want to prepare here
 3190 sample drawings, uniform, to have instructions in my letter of 16th December last carried
 out.”

You had better send drawing to me to examine, before it is sent up to the Chief. Scale
 4 feet to an inch would, I think, be convenient ; or 8 feet if this is too large. Show end
 elevation, Plan, Transverse, and Longitudinal Sections, and mark dimensions in figures.

Yours most truly,

M. SMITH.

(190)

DALHOUSIE, 19th Nov., 1870.

P. A. PETERSON, Esq.,

Engineer Division N.:

3200 MY DEAR SIR,—I have your letter of yesterday's date. and, from the information therein, I think it would not be prudent to lower the grades as I proposed. At least, it may remain for the present, as there will not be much more light work done till next spring. Minor alterations as shown below, will, however, be a considerable improvement; viz.:

	STATION.	HEIGHT.	GRADE.
	51 + 33	180	As before.
	80	180	Level.
	120	140	.25 per 100
	180	189	.10 " "
	142	142	.25 " "
3210	172	166	.80 " "

Make these alterations, then complete your green books (General Instructions No. 2) and if there are any subsequent alterations, we can send in a supplementary record.

Make the road deviation from 104 to 102, thus:

(Sketch.)

We shall thus take less than an acre from the farm, leaving the old road and taking the whole of the triangular pieces; but if we give up these to the farm, we shall scarce take anything.

Yours truly,

MARCUS SMITH.

3220 (191)

BATHURST, November 19th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie:

MY DEAR SIR,—I have received yours of the 18th inst., containing copy of chief Engineer's letter of Dec. 16th, 1869, and also a copy of telegram with reference to drawing of some structure built.

I shall prepare a drawing of culvert at 474 as you suggest. The culvert is not yet however built. The foundation course will be all in this afternoon if the men work in the rain, which is very doubtful.

3220 I enclose a tracing of part of the third course in the foundation of the Nipissiguit Bridge. You will see that there is only *one header* in it, and that there is a space of 9 feet with no header, with front stones only 17 inches in breadth; the course is two feet deep. I think there should be another header in this wall, and when I suggested it to the Inspector, he got into a rage, and said I was always finding fault with him, &c., &c. He was angry because I

told the foreman at culvert at 474 not to dress the bottom of the paving over which the water runs. He also considers it a grievance that you told the foreman on No. 9, that too much dressing was put on some coping. I wish you would be so kind as to let me know in what position the inspector stands with reference to myself, so that I may not encroach upon his domain, and at the same time not neglect my duty. I consider that I have been far too civil
 3240 to him, and staid listening to his long harangues when I should have been at something else.

Are headers to be six feet from *centre to centre*, or from side to side.

Yours very truly,

(Signed) P. ALEX. PETERSON,

(192)

BATHURST, November 20th, 1870.

M. SMITH, Esq.,

SIR,—I understand that Mr. Peterson has sent you sketch of some of the work for the abutment of the Nipissiguit Bridge. He complains to me that there should be more header on that course, the face stone was laid when I saw it. I examined it, and I could not see where I could put another header for the benefit of the work on that wall, or if there was
 3250 another, it had to be next the corner, and that would have come on the angle inside, or if farther on the wall it would have come on the header below; between the walls inside is only 12 feet. I said to Mr. Peterson to put 2 headers in one course, and one on the other, alternate courses. The foreman has laid off the walls 4 feet 4 inches thick till it is brought to the surface. The face stone on this course is 1 foot 6 inches, the header 2 feet 9 inches: courses square up to the face stone. So if I have done wrong, I have not done it for any favor for any one. When I saw you last in Bathurst, you told me to write you for any information that I wanted; that is the reason that I have taken this liberty. Any works that I have been engaged on heretofore I have given satisfaction, and I hope that I will do the same here.

3260

I remain your obed't servant,

(Signed) JOHN FOTHERINGHAM,

Inspector of Masonry, contracts No. 15 and No. 9.

(193)

DALHOUSIE, 21st November, 1870.

P. A. PETERSON, Esq.,

Engineer Division N:

MY DEAR SIR,—Bertrand is here; he complains that Fotheringham insists literally on a header being placed every 6 feet (in the abutments at Nipissiguit River) according to specifications. Now as this south abutment is 21 feet from front to back, after you place the quoins, it follows that there is only room for *one* header between, and this would be always
 3270 in the middle unless you put, in alternate courses, one and two headers. It would do just

as well if the header were put a little off the centre, say to the left in one course, and then to the right in the next course. Then a third course, there might be two headers put in, and this last course should be when the quoins are narrow.

This would make excellent masonry, in fact with such stone the main point is to break joints everywhere, then you can hardly go wrong.

Yours most truly,

M. SMITH.

(194)

BATHURST, Nov. 21st, 1870.

MARCUS SMITH, Esq.,

3280

District Engineer,

Dalhousie :

My DEAR SIR,—I enclose diary extracts and force returns. Mr. Odell gets returns from me for No. 1 quarry at Rough Waters. I send No. 2 quarry on a separate sheet, because Bertrand will not, or cannot, tell me what he intends to do with the stone; you will see he has had 7 stone-cutters all last week, but I cannot find out whom they are acting for.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(195)

DALHOUSIE, November 21st, 1870.

CHAS. ODELL, Esq.,

3290

DEAR SIR,—I have adopted the following changes of grade on your division :

STATION. ELEVATION.

80.....	195	} 89½ per 100.	Rise 6 feet.
98.....	201		
98.....	201		
128.....	225	} 0.80 per 100.	Rise 24 feet.
128.....	225		
155.....	234	} 0.88½ per 100.	Rise 9 feet.
155.....	234		
157.....	234	} Level.	
157.....	234		
183.....	221	} 0.50 per 100.	Fall 18 feet.
183.....	221		
198.....	218	} 0.20 per 100.	Fall 8 feet.

3300

Yours truly,

MARCUS SMITH.

(196)

DALHOUSIE, November 22nd, 1870.

CHAS. ODELL, Esq.,

Engineer Division M:

My DEAR SIR,—For the purpose of reducing the schedule of rates for making out
3310 certificates to as nearly uniform scale as possible (proportionate in the several contracts as the total amount to the total quantity of work), I wish you would ascertain as nearly as you can, from the time in your progress reports and the wages paid, the actual cost to the contractor of the several classes of work in your division to the end of last or of the present month, selecting as examples, say:

Excavation.

- 1st. From borrow ditches in cleared land and generally light or gravelly soil.
- 2nd. From borrow ditches in woods of generally the same nature of soil as the last.
- 3rd. From borrow ditches in cedar swamps or where the soil is heavy.
- 1th. The same, with different classes of cuttings, giving the average haul.

3320*Rock Excavation.*

- 1st. Where, as in slate rock, it comes off in leaves with the pick.
- 2nd. Where it is more tenacious and powder has to be used: take examples in borrow ditches and line cuttings, giving average haul in latter.

Masonry.

- 1st. The cost of *quarrying*, whether in granite, limestone or sandstone, taking such quarries as are near the works or easily reached.
 - 2nd. The cost of cutting, in each description of stone, whether for first or second class masonry.
 - 3rd. The cost of laying, including quantities and cost of cement and sand used:
- 3330** make Inspector of Masonry give this as well as time, and all details connected with masonry.
- 4th. From the above make out abstract of the total cost per cubic yard of masonry of each structure from which the example has been taken (concrete, rip-rap, crib wharfing and other works), the cost to be analyzed in like manner.

To make the above information more valuable there should be at least two examples taken of each kind of work done under different foremen or gangers, or one by a sub-contractor.

For example: I find some work done from borrow ditches costing 25 to 30 cents per cubic yard, while at other places I find the same kind of work done for 16 cents or less, and
3340 sub-contracts taken at the price have been done for considerably less.

On enquiring into the cause of these discrepancies, I find, in some cases, the material has been shifted three or four times *through want of wheelbarrows*. In other cases, when the plant and men have been on a par, one gang would do from 20 to 50 per cent. more work

than another. *Cause.*—The ganger or foreman in one case would be a smart, active fellow of some experience—would know how to direct his men to work, and know when they were working properly; in the other, the ganger would be a fellow from the neighborhood (a farmer, botch carpenter or shoemaker) who possibly never saw a railway in his life.

I find this cause of discrepancy in cost traceable in all kinds of work, and notably so in masonry, where I have found stonecutters accustomed to prepare stone veneering for
 3350 house work using the same kind of tools for cutting granite, notably the broad chisel.

You will see from the above the necessity, in trying to discover the cause of great discrepancies in cost of work, of enquiring, not officially, into the antecedents of the parties employed as walking gangers, foremen, or gangers over a single gang, &c.

Besides the defects in practical knowledge of those employed in carrying out the details of the works, you will probably find in some cases all those evils traceable to the principal parties themselves who have taken the contracts, and not having any or but very little experience in such works as they have undertaken, are not only incapable of choosing the proper men to carry out the details of the works or of knowing when their men are working industriously or economically, but are also incapable of making the proper combinations or arrangements necessary to make the whole work harmoniously—that is, not to have
 3360 one party waiting for another or any party waiting for materials, and to know the proper season for works to be commenced or carried out. For example: great expense may be gone into in excavating coffer-dams, pumping, &c., for foundations in rivers, &c., and when the masonry comes to be laid it is found that there is not enough of stone of any one course to complete even the footing course, and so on.

This watchfulness may seem inquisitorial, but it is necessary for the credit of the engineers, as contractors are continually running up to the Commissioners with all sorts of complaints against them, and we must be prepared to show where the fault lies.

Yours, &c.,

3370

MARCUS SMITH.

(Copy sent to P. A. Peterson.)

District Engineer.

(197)

BATHURST, 25th November, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—I send by mail to-night, a plan of the box culvert at 474, as asked for in your letter of the 18th instant.

The Chief Engineer's telegram asks for a plan of any one structure built. Of course, you are aware that I have no structure built. I have made a note on the plan that it is only built up to two feet above top of paving.

3380

I did not know whether I should show the whole structure, or only so much as is built. I did think of tinting in pink the portion built, but if necessary this can be done in Dalhousie.

The foundation and paving, and the two outside walls are up two feet, but the centre wall is not in.

I have the cost of all the cutting, rries, and stone cutting, ready to send to-morrow; also a list of the foremen engaged; the n. ority of these are farmers, ship builders and shoe-makers. I have changed the grades as suggested in your letter of the 19th inst., and Mr McLaughlin is now getting these portions out.

Referring to your letter of the 21st, the Inspector of Masonry has *not* had two headers 3390 put in any one side of the abutment. I told him he had better have two headers put in each side of the next course (the fourth), and as this has not been laid, I do not see what Mr. Bertrand has to complain of; and besides, the foreman told me it was not any more expensive to put in two headers in each course than one.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(198)

OTTAWA, 25th November, 1870.

Messrs. J. B. Bertrand & Co., Quebec.

GENTLEMEN,—The Chief Engineer has informed us that there was an error in October estimate for Section No. 9, of \$8,000, the certificate having been for that sum more than it 3400 should have been. It was too late to affect the warrant, which had gone through, and was paid, but the error will be adjusted in November estimate.

The mistake, Mr. Smith writes, was in the item of materials delivered.

I am, Gentlemen,

Your obedient servant,

(Signed)

C. S. ROSS,

Secretary.

(199)

BELLEDUNE, 26th November, 1870.

M. SMITH, Esq.:

My DEAR SIR,—As requested in your letter of 18th ult., I herewith enclose a tracing 3410 of arch culvert at 786 + 50 as built, marking the various dimensions thereon, according to instructions contained in the Chief Engineer's letter of the 16th December ultimo.

I remain, yours truly,

(Signed)

CHARLES ODELL.

(200)

BATHURST, Nov. 26th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie:

I enclose a statement of the work done at each cutting, and the total cost, the cost per yard, the nature of material excavated, and the previous occupation of the fore-

3420 man. I forgot, when writing you last night, to ask you if you could make a note on the plan I sent, that it had been commenced as a double box culvert 8' x 4', and that during its construction you had ordered it to be raised 18", for the chief may wonder at its being so long, and think it some error of mine.

* * * * *

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(201)

ENGINEER'S OFFICE, SECTION No. 17.

28th Nov., 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer :

3430

My DEAR SIR,—

* * * * *

I wish McConnell, who is dismissed Contract No. 9, were given a chance somewhere; but he is too good for a rodman. He ought to have been retained as assistant on Section 9, and Mr. Bolger been made rodman, which he is more fit for; he cannot even set out a ditch, and the contractor of No. 9 will have to stop till a competent assistant is put on.

Yours truly,

(Signed)

MARCUS SMITH.

(202)

BATHURST, Nov., 28th, 1870.

3440 MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—I enclose force returns, &c. I am still unable to get any information as to where the stone from the Rough Waters' quarry is to be used.

I received yours of the 22nd inst. this morning. I sent you, I think, very nearly what you have asked for on Saturday, I shall however see if I can make this statement any fuller, so as to comply in every respect with your letter. The contractor is constantly asking for plans of the Nipissiguit Bridge so that he can commence to cut stone for cutwaters, &c. He has also asked for plans of overhead bridges for public roads—could you send me a lithograph copy of these bridges to hand him? I have not yet received the specification for the 3450 fencing or cattle guards.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(208)

BATHURST, Dec. 1st, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—I expected to be able to send you the estimates by mail to-night, but I find I cannot get the quantities in time, as the mail leaves about 6 or 7 o'clock. I can however telegraph you the quantities early to-morrow morning, and if you wish me to do so I suppose you will send me a telegram to that effect.

- 3460 This month I only return 814 yards of quarried stone, 141 yards of cut stone, 74 yards of first-class masonry, and 140 yards of second-class ; whereas last month I returned 784 yards of quarried stone, 132 yards of cut stone and 27 yards of second-class masonry. The discrepancy between the quantities of quarried stone arises from the fact that last month it was measured in piles, and as these were loosely thrown together, the measurement gave a large excess ; and besides this, many of the stone were mere refuse from the quarries that were so badly taken out by blasting that it will not pay to cut them for either first or second-class masonry. The inspector this month went with Mr. Dickey when he was measuring the stone, and I told him to throw out all that were not worth cutting—all the stone have now been measured very carefully. So I shall make out a new statement of the
- 3470 cost of work, and send you as soon as I get the estimates finished. Bertrand's stone cutters all struck to-day.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(204)

BELLEDUNE, 2nd Dec., 1870.

MARCUS SMITH, Esq. :

MY DEAR SIR,—I herewith transmit to you the progress estimate for the month of November.

- 3480 I have had all cuttings and side borrowing, &c., carefully measured up (especially those that are not likely to be worked again this season) as also all stone delivered. You will perceive there is a large decrease this month, compared with the previous returns ; which is attributable to the short days and a great deal of broken weather, and also to the reduction in the force.

I received a copy of your letter of the 22nd ult. on Monday last, and will endeavor to obtain the information sought, with as little delay as possible.

I remain,

Yours truly,

(Signed)

CHARLES ODELL.

(205)

BATHURST, December 2nd, 1870.

MARCUS SMITH, Esq.,

3490

District Engineer,

Dalhousie :

My DEAR SIR,—I enclose monthly certificates for November. I have allowed 814 yards on the earth to make the estimate up to the end of the month. This is about as much as should be allowed, as, on the western end, the measurement was only finished on the night of the 30th. The contractor being overpaid last month on his quarried stone, it has to be deducted this month, and so his estimate is much less than it would otherwise have been. I shall send out to-morrow, and have all the quarries cross-sectioned, so that the quarried stone need not be measured. It is impossible to measure it correctly when it is heaped up in piles 12 and 15 feet in height, and even when we measure the place the stone has been taken from, a considerable allowance must be made for stone wasted by bad quarrying. There is considerable stone at the "Rough Waters" which will not appear this month in any estimate, as Bertrand could not say where any of the stone was for. I told him it would not be estimated, and he said he did not care.

Philips is away, and so I can not get the details of the cost of the work on the western end. He never told me he was going.

Yours very truly,

(Signed),

P. ALEX. PETERSON.

ESTIMATE OF STONE AT "ROUGH WATERS," DECEMBER 3RD, 1870.

3510 No. of Quarry.	Dressed Stone,	Quarried Stone,	Probable Destination.
	Cubic yards.	Cubic yards.	
No. 1	7	30	Tête-à-gauche Bridge and Peter's River.
" 2	25	33	do do do
" 3	42	97	Louison River, 20' arch.
	74	160	

(Signed),

P. ALEX. PETERSON,

Div. Engineer.

BATHURST, December 3rd, 1870.

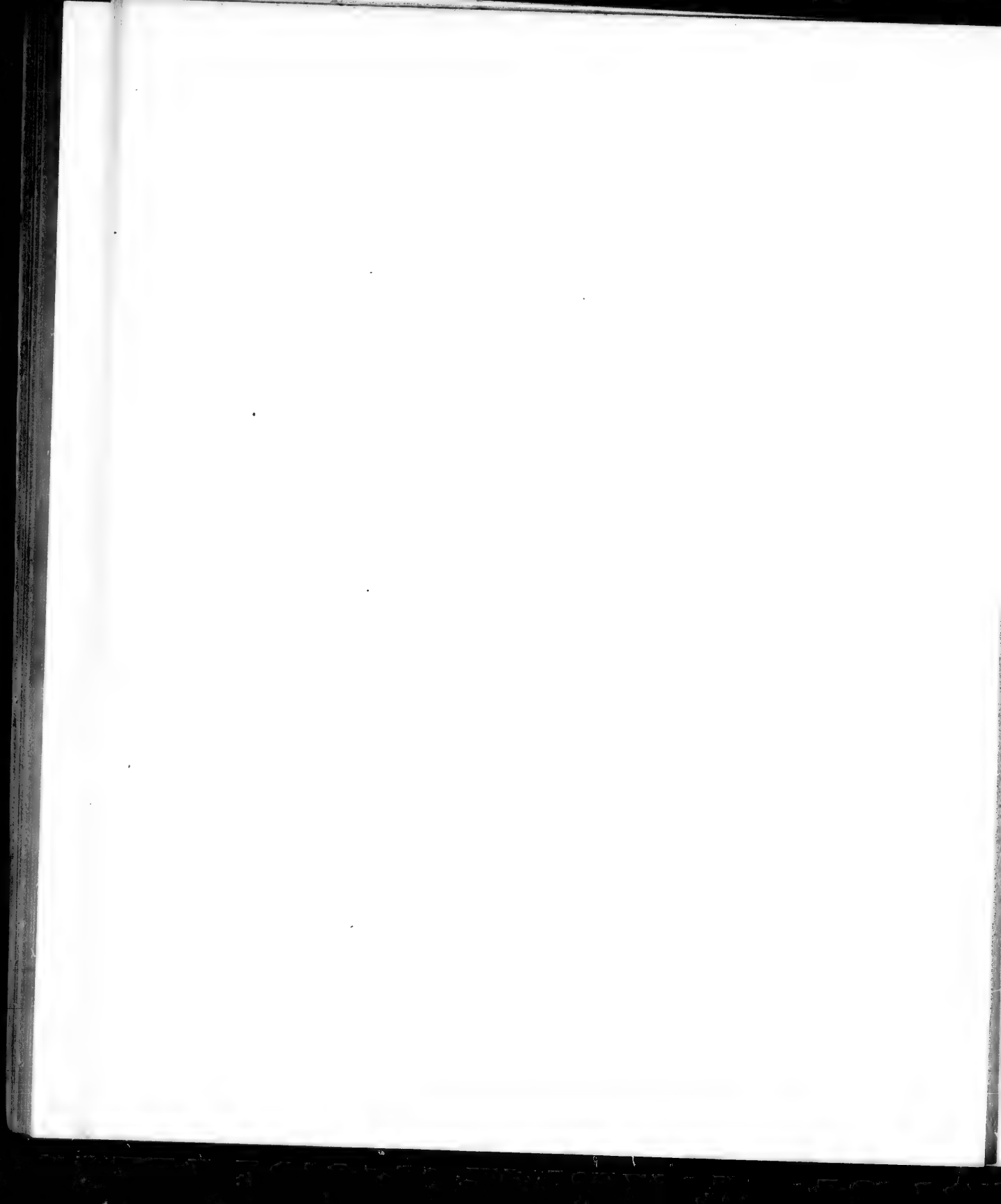
(206)

BATHURST, 3rd Decembre, 1870.

3520 M. SMITH,

District Engineer :

MONSIEUR,—Je vous troublerai, de nouveau, pour vous demander, si c'est nécessaire de remplir la dernière course des murs latéraux de la double box culvert que nous construisons.



sur la section No. 15 à 485; les pierres sont grosses et ont du lit, les bouts des couverts seront tous bien assis, il n'y a que deux ou trois pierres qui ont moins que deux pieds sur la largeur du mûr; je vous envoie *sans avoir mesuré juste la chose* telle qu'elle est dans les plus étroites et les plus larges, nous pouvons tout terminer à part cela, si vous jugez à propos de répondre; si vous trouvez que cela vaut pas la peine nous la couvrirons comme cela.

Votre obéti., serviteur,

3530

(Signé)

J. B. BERTRAND.

(207)

BATHURST, Dec., 8rd, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—Yours of the 2nd inst., was received this a. m. I now enclose the quantities of stone at the " Rough Waters " quarries as far as they can be taken. The quarry on the Island can not now be got at on account of the high water and running ice. Bertrand's agents say there are 12 yards of cut stone on the Island, but as they always gave about four times the quantity, I have thought it better to leave this out entirely.

3540 Bertrand is finding fault about the work at 474, he wants to put on the top 18' course with a single stone and not finish it up. I told the Inspector he might make it 2'-6" on the top instead of *three* feet, and slope it down to the next course. The quarry face has been allowed to project so much in some places, that instead of being 8' 0" wide, the water-way is only 2'-0". I ordered some of these projections to be taken off, and the foreman informs me Bertrand objects to this also.

The chainmen inform me that the foremen are now refusing to give the time. I suppose in case they persist in this, I may refuse to give the contractor the quantities.

Yours very truly,

(Signed),

P. ALEX. PETERSON.

(208)

DALHOUSIE, 5th December, 1870.

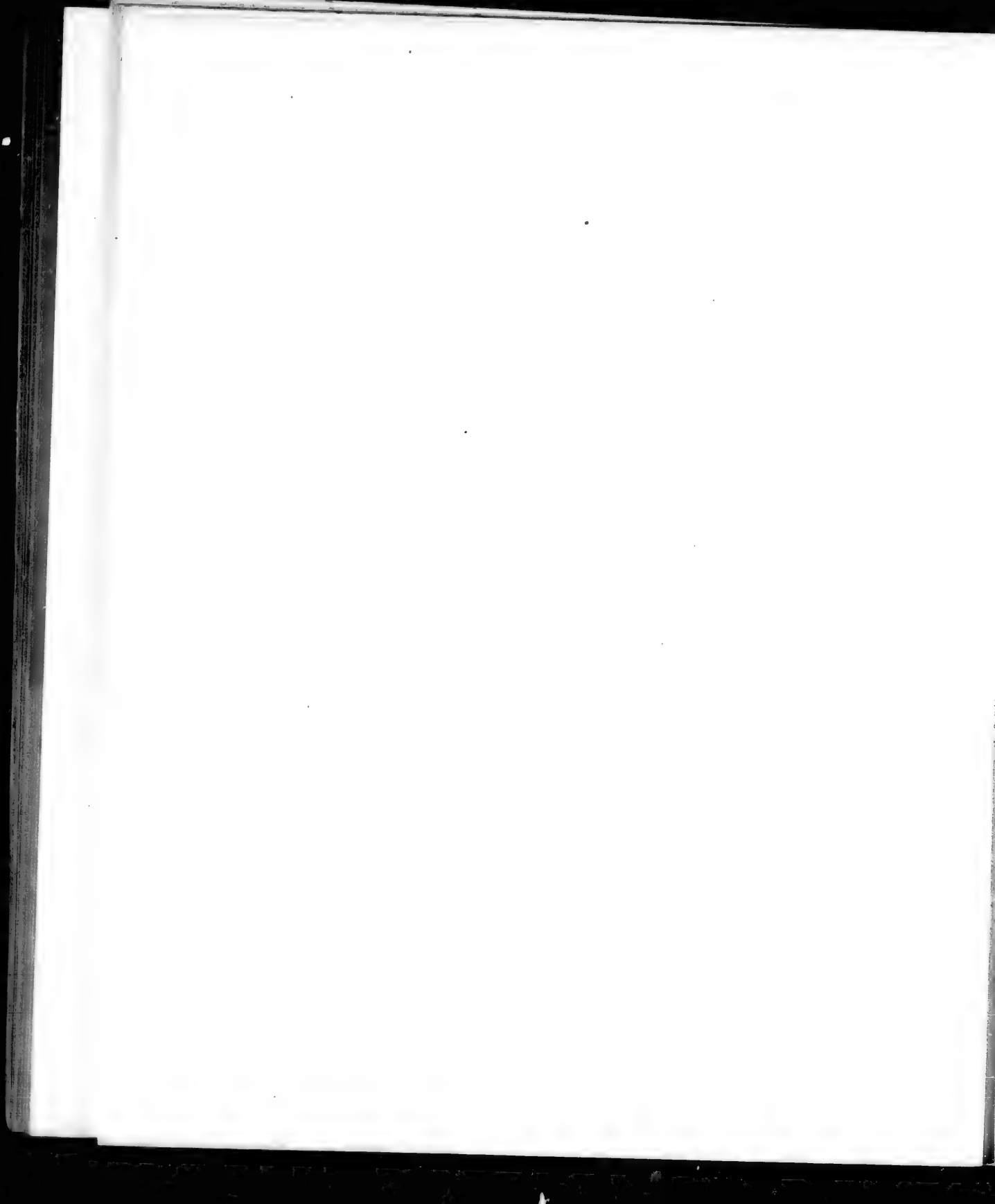
3550 SANDFORD FLEMING,

Chief Engineer :

MY DEAR SIR,—Herewith I send you the certificates of work done up to the end of November.

You will observe that there are no materials returned for No. 6.

They have stone and timber delivered to the value of, say, \$800; but they have used materials delivered by the late contractors (Messrs. Jobin & Co.) to full that value, and I thought it the simplest way to put one against the other, until they have taken all that they intend to take of the materials delivered by Jobin, when I will value the same, and get present contractors to remit to the Commissioners a draft for the amount as instructed by the



3560 Secretary. *Contract No. 9.*—I have entered the relative value of work done to the end of October, according to the *corrected* return ; but have also entered the first (and incorrect) return in pencil, as I don't know by which one the Contractor was paid. *Contract No. 15.*—You will perceive that there is a diminution in the quantity of stone delivered, greater than what has gone into masonry. I have had the whole re-measured very carefully, and this is the result.

Yours most truly,

(Signed)

M. SMITH.

3570 P. S.—There is about 140 c. yards of stone quarried at Rough Waters, 74 yards of which is cut. Mr. Bertrand could not tell Mr. Peterson what contract he intends this for, but that it would probably be divided amongst the four contracts, (8, 9 and 15). As this stone is two miles away from the railway line, and we have not possession, I thought it better not to return it until it is delivered on the line ; and if the contractors should break down before that, then they must give us legal possession of the stone where it lies, before we can return it. Please inform me if this is the right view of it.

(Signed)

M. S.

(209)

OTTAWA, 6th December, 1870.

MESSRS. J. B. BERTRAND & Co.,

Quebec.

GENTLEMEN,—Referring to my letter of the 25th ultimo, the Chief Engineer says there will be no November estimate for No. 9 Section, as the work done in November does not 3580 cover the previous over-payment of \$3,000.

Estimate (November) for No. 15, is \$4,490. Warrant has been applied for to-day, and will be ready (probably) 8th instant.

I am, Gentlemen,

Your obedient servant,

(Signed)

C. S. ROSS,

Secretary.

(210)

BATHURST, December 6th, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

3590 MY DEAR SIR,—I mentioned in my letter of the 3rd instant, that some of the foremen had refused to give us the time. I saw Bertrand this morning, and he informs me that these orders were not given by his instructions, and that he will see to it.

I think you told me you were getting ready some *General Plans* for farm crossing bridges, culverts, &c. If these are finished, would you be so kind as to send me down a copy of them.

I am making drawings of the ground plans, and fixing the position of the "overhead bridges" for public roads; shall I make them all to cross the line at right angles, or will you allow a slight skew so as to keep the road straight, as at 284 and 337? Of course, at 465 and 583, the angle is so great that the road must be changed, and so we may as well cross at a 3600 right angle.

Bertrand is asking for plans of these bridges, so as to give Mr. Ferguson his bill of timber. I shall send this week cost of work up to 1st December.

Yours very truly,

(Signed)

P. ALEX. PETERSON,

(211)

DALHOUSIE, 6th December, 1870.

P. A. PETERSON, Esq. :

Engineer, Division N.

MY DEAR SIR,—I have received your letter of the 3rd instant, with returns of stone at Rough Waters. I have written to the Chief Engineer for instructions about returning 3610 this, which I hope to have before next measurements.

The double box culvert at Station 474 must be finished according to general drawings, sheet No. 4, which shows the walls 2' 6" thick at the top. I did not expect there would be any projections of the rock-faced stone on the inner faces of the culvert walls—at most, not over an inch, nor would there be, if the split faces of the stone were laid next the water way. The double box culvert was substituted for a 6 feet arch, and it was intended there should be 6 feet clear water way, so that if stones with a very rough quarry face were used, the openings should have been made wider to compensate for the projections.

If this culvert is found too small at the flood season, there will have to be another culvert built at 471.

3620 If they refuse to give you the time, you must get your man to count the men every day; in fact, this is what was intended, and not to trust to the foremen.

Yours truly,

(Signed)

M. SMITH.

P. S.—Give the enclosed copy to Bertrand.

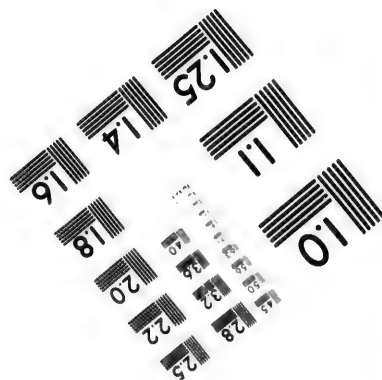
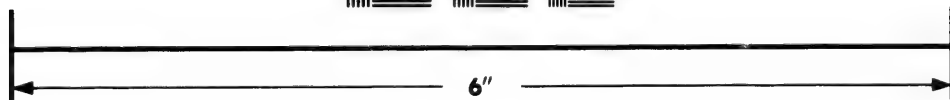
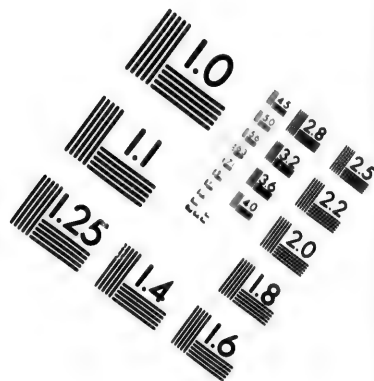
(212)

DALHOUSIE, 6th December, 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer :

3630 MY DEAR SIR,—On examining the plans of the west abutment and an average pier of the Nipissiguit Bridge (Contract No. 15) a tracing of which Mr. Blackwell, in my absence, sent to you on the 10th November. I find that in the elevation of the pier he has drawn the line of the nose of the cut water parallel to the line of the shoulder or springing of the same. Now, as the pier itself batters on the sides, it is, of course, not so thick at the top of

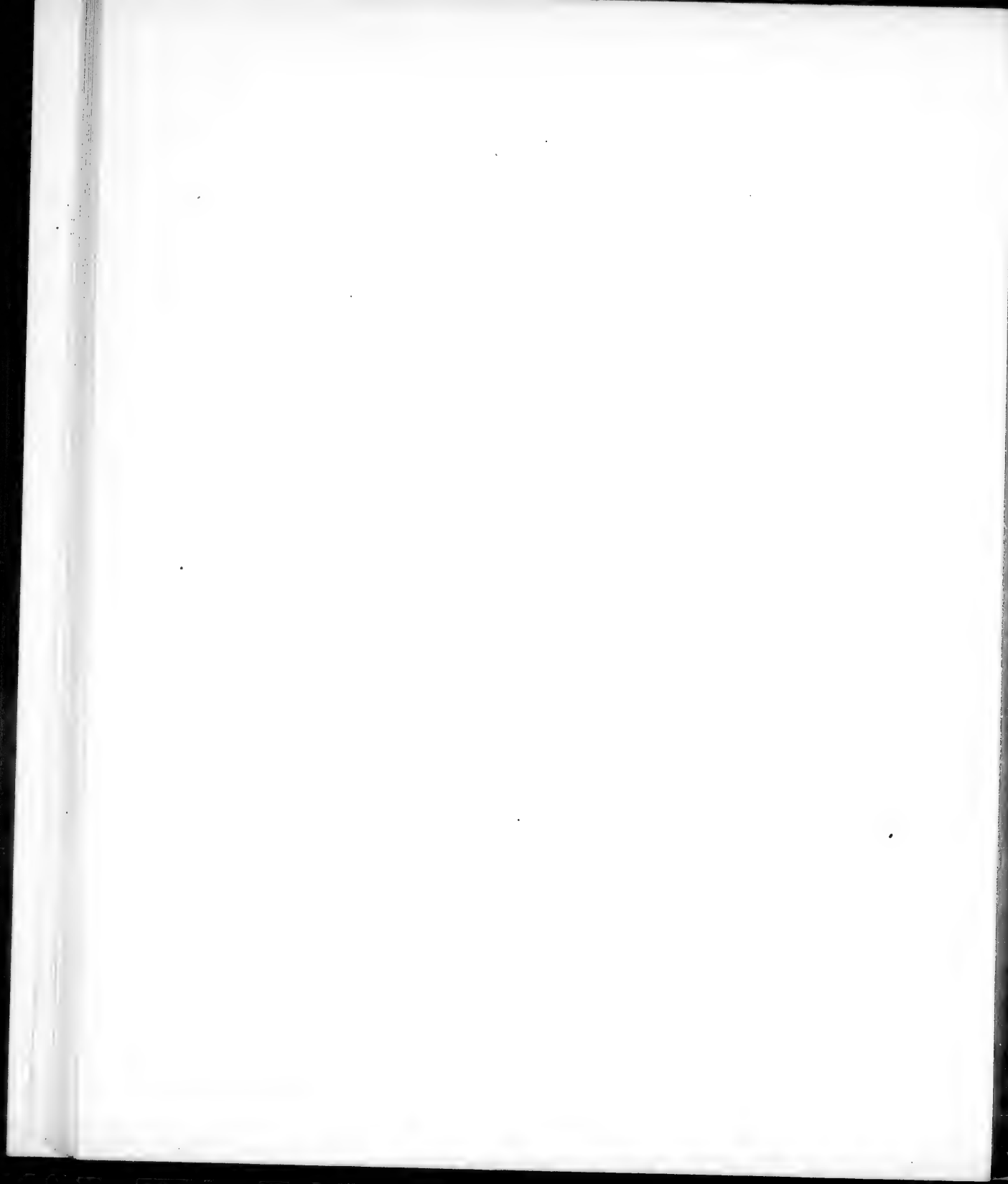


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10



the cutwater as at the bottom, and to make the sides of the cutwater true planes the angle of the nose (90°) should be the same at the top as the bottom, and as the base of the triangle, which is the thickness of the pier, is smaller at the top than the bottom, it follows that a perpendicular from the nose of the cutwater, would also be shorter at the top than the bottom of the cutwater. Instead of this, Blackwell has drawn the lines parallel, consequently the faces of the cutwater will have a twist, and the angle of the nose (90°) at the bottom, get less every course towards the top. The enclosed is a tracing from the corrected drawing, which if you lay over that sent on the 10th November, will show the error at once.

Mr. Thompson—Contract No. 18—writes me to-day that the contractor, Mr. McGreevy, has made contracts for the supply of first-class stone from Miramichi, and he wants the *Bridge plans* as soon as possible to cut the stone by. If you will get Forrest to draw the bridge over the Metapedia (Station 6), which is on a skue of 45°, I can get all the others drawn here as they follow the general drawings. I could also get drawn here all the bridges on Contract No. 17. As the two bridges on the Metapedia would be exactly similar to this on No. 18, except in the height and length of the abutments. A breakwater would be required on the upper side only. Thompson asks if sandstone would do for these; I doubt it; they should be of granite.

Yours most truly,

(Signed)

M. SMITH.

(219)

DALHOUSIE, 7th December, 1870.

P. A. PETERSON, Esq.,

Engineer Division N :

MY DEAR SIR,—Herewith I send you plan, &c., of 20 feet culvert for Peter's River, with a sufficient number of sections to enable the contractor to cut the stone without any difficulty. You will please furnish him with a tracing of the same.

I shall send the plans of the abutments and piers of the Nipissiguit Bridge in a day or two, with a drawing of the principal stone of the cut water on a large scale, for the contractor to work by.

Bridges and culverts for ditches, crossing approaches, public and private road crossings, ready in a few days.

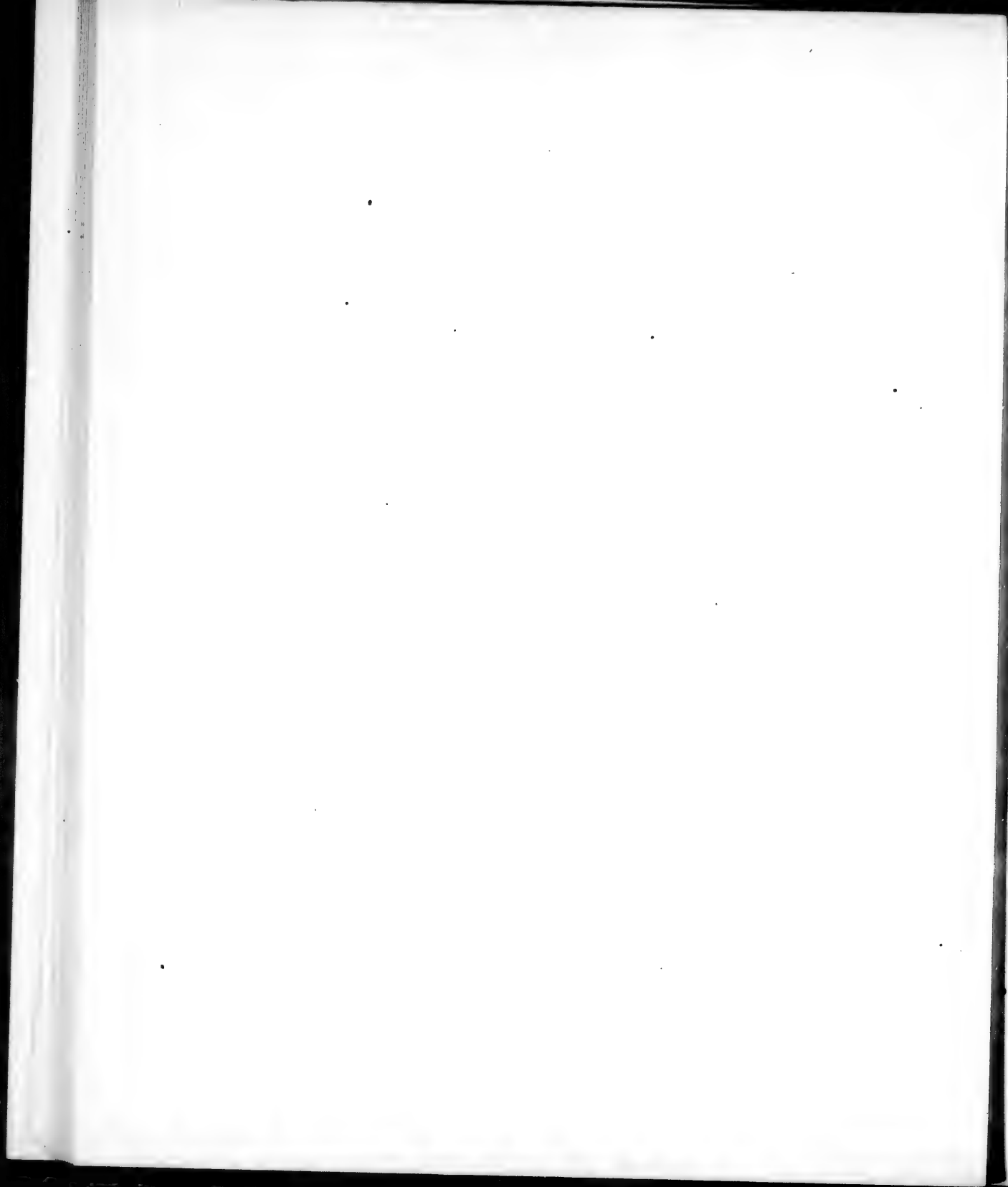
Send me sections (on a scale 20 feet to an inch, horizontal and vertical) of the crossings where there are to be overhead bridges, and I shall have bills of timber got out for contractors.

Chief wants to know how near iron for Nipissiguit Bridge can be floated in scows. I have replied 2 miles, but that there is no road alongside river from head of tide to bridge, but think temporary road can be made at little cost. Write me *as soon as possible*, if likely, we can get permission to make a temporary road. What length of it will be through woods, nature of country, of chopping, and rough estimate of cost.

Yours truly,

(Signed)

M. SMITH.



(214)

DALHOUSIE, 7th Dec., 1870.

To S. FLEMING,

Ottawa:

Material can be taken in scows within two miles of Nipissiguit Bridge, but there is no road alongside of river. Have written to Peterson to know cost of making temporary road.

3680

M. SMITH.

(215)

BATHURST, Dec. 9th, 1870.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie:

MY DEAR SIR,—I received yours of the 7th inst. and the enclosed plan of 20' arch for Peters' River yesterday.

I wrote Bertrand on the 7th, and sent him tracing of the general plan for road bridges. I also gave him the following dimensions:—Bridge at 285, three spans of 25 feet; height from formation level to bottom of stringers, 20'. At 387 + 53, three spans of 25' and two spans of 16'; height from formation level to bottom of stringer, 20 feet. At 464 + 70, three spans of 25 feet; height from formation level to bottom of stringer, 20 feet. At 582 + 95, three spans of 25 feet and two spans of 22 feet; height from formation level to bottom of stringer, 32 feet. At the Little River road crossing, 464 + 70, I think I should have given three spans of 30'. You will, however, see from the enclosed tracing what it should be. I do not think Bertrand will require a bill of timber when he has the general plan and the dimensions.

3690

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(216)

BATHURST, December 9th, 1870.

MARCUS SMITH, Esq.,

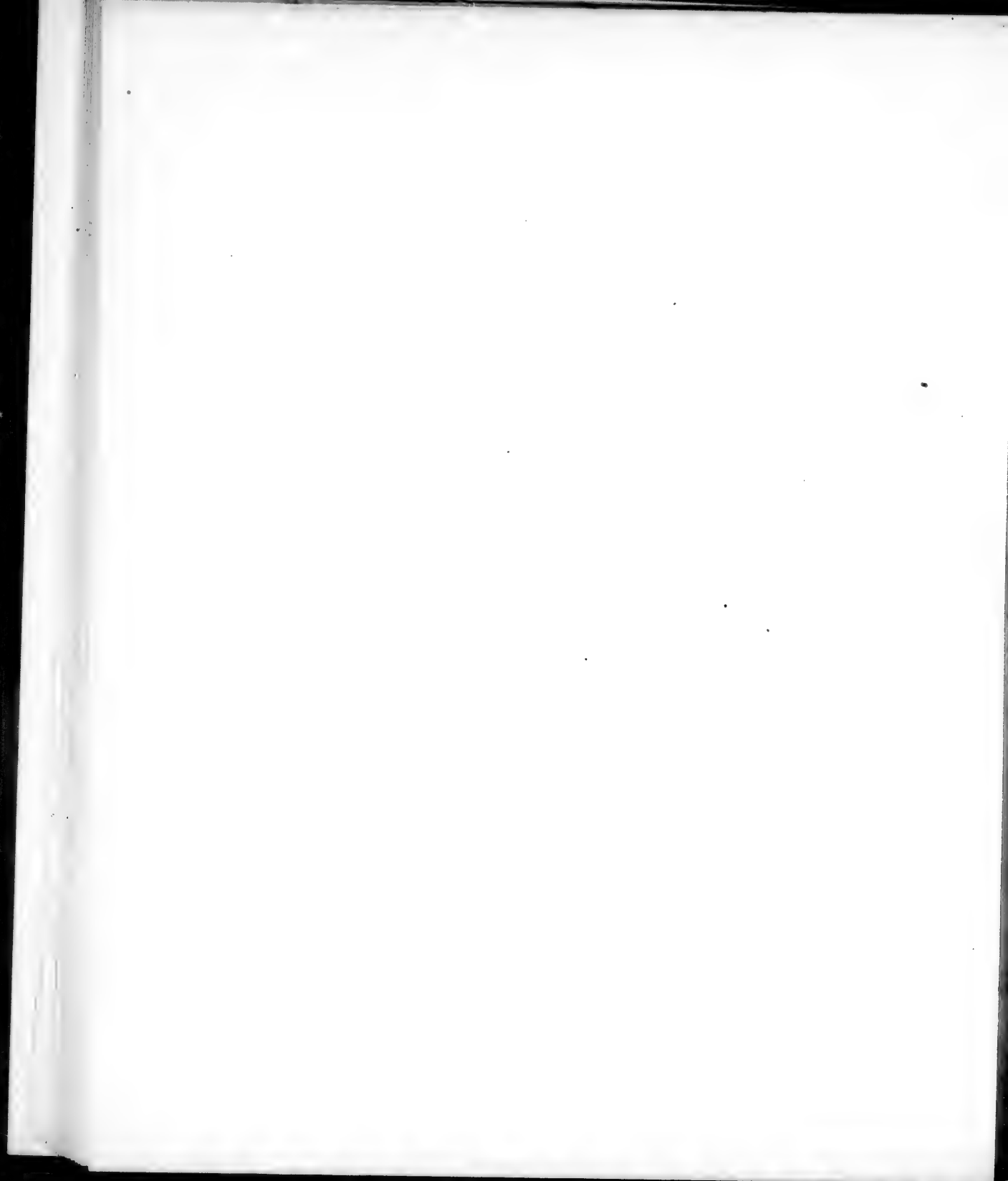
District Engineer,

3700

Dalhousie:

MY DEAR SIR,—I walked over the ground yesterday between the "Rough Waters" and the bridge site. The distance is about $1\frac{1}{4}$ miles. Bertrand has made a road to his quarries, which are nearly half a mile up from where scows can unload, so that there only remains a mile and a quarter to make. Bertrand's road is rather rough, but he intended to draw stone over it this season, and will be doing so this winter and next summer, so I conclude that no expense need be put on this portion. Above this road we have a mile of lumber road, which will require widening, and some of the boulders will have to be removed; the remaining $\frac{1}{4}$ of a mile is through light woods and cleared fields, about half of each. The cost

3710 will be about as follows:



Widening 1 mile of lumber road, say 8 feet—1 acre clearing and close cutting through light timber	\$40 00
1,000 feet of clearing and close cutting, 16 feet, in width say $\frac{1}{4}$ of an Acre	20 00
8 small bridges, say 20' from bank to bank—\$15 each	45 00
Removing boulders,—filling holes, as equal to 1,000 yards at 20 cents	200 00
	\$305 00

This will make a better road than that made by Bertrand to haul a yard of stone at a load over. There will be no difficulty in getting permission to make this road.

Yours very truly,

3720

(Signed) P. ALEX. PETERSON.

(217)

BELLEDUNE, 10th December, 1870.

MARCUS SMITH, Esq.,

Dalhousie :

MY DEAR SIR,—In regard to the road diversion at 775, shall I lay it out as we spoke of when you were down last, i. e., to make the fence in a little on the north side, and run the road up parallel with the embankment, and cross at grade near Station 775.

Please let me know at once about this, as the contractors wish to get it done at once, so as to enable them to fill up the present gap in the embankment.

Yours very truly,

3730

(Signed), CHAS. ODELL.

(218)

DALHOUSIE, 18th December, 1870.

CHAS. ODELL, Esq.,

Division M :

MY DEAR SIR,—I have received your letters of the 10th inst. Referring to the road diversion at Station 775, it may be laid out for the present, at least, parallel and adjoining the Railway on the lower (north side); but on the other side it would be better to strike off obliquely at an angle say of 45°, after crossing the railway fence, so as to avoid going down the hill and re-ascending it. Will you try this and see the owner of the farm, what he says about it—then send me a sketch of it.

3740

You will have to arrange it so as to do as little damage as possible. If I recollect rightly there is a house, or building, near there. You may let Bliss, and all the others whose services are not required after the end of this month, go, as soon as you can spare them.

Yours truly,

(Signed) M. SMITH.

(219)

MADISCO, 18th December, 1870.

P. PETERSON, Esq.,

Engineer I. C. R.,

Section No. 15 :

SIR,—Would you be kind enough to examine on line near St. Ann's Road, two panels 3750 of fence, and inform us if it agrees with specification and meets your satisfaction.

Yours most respectfully,

(Signed)

J. B. BERTRAND & CO.

per. J. A. Turcotte.

(220)

DALHOUSIE, 15th Dec., 1870.

SANDFORD FLEMING, Esq.,

Chief Engineer :

MY DEAR SIR,—Referring to your telegram of the 6th inst., respecting the distance from the site of the Nipissiguit Bridge, to which materials could be floated in scows, Mr. Peterson sends the following particulars :—

3760

" The distance is about one and three-quarter miles ; Bertrand has made a road to his quarries, which are nearly half a mile up from where scows can unload, so that there only remains a mile and a quarter to make. Bertrand's road is rather rough, but thinks it good enough to draw very heavy stones over during this winter and next summer."

" Above this we have a mile of lumber road, which will require widening, and some of the boulders removed. The remainder (one-fourth of a mile) is through light wood partially cleared.

" The cost will be about as follows :

" Widening one mile of lumber road, say eight feet, one acre clearing and close cutting light timber.....	\$40 00
3770 " 1,000 feet clearing and close cutting, 16 feet wide, say one-third of an acre.....	20 00
" Three small bridges, say 20 feet from bank to bank, \$15 each.....	45 00
" Removing boulders, filling up holes, 1,000 cubic yards grading at 20 cents.....	200 00
	\$305 00

" This would make a better road than that made by Bertrand. There will be no difficulty in getting permission to make this road."

This road will be nearly level along the side of the river, and if the cost is put at \$400, I think it would pay better than hauling the materials over a greater distance on hilly roads.

Yours truly,

(Signed)

M. SMITH.

3780



(221)

BATHURST, Dec. 15th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I have been to examine a couple of pannels of fence the contractor has put up as a sample. It agrees with the specification in every respect, with the exception of the top rail, which is not halved, but fastened thus :

(Sketch).

3790 which, I think, is rather an improvement than otherwise. The washers on the bolts are very small, barely as large as the nuts. What size would you wish them for one-half inch bolts ? As the contractor is now in Dalhousie, I shall not answer his letter, asking me if I approve of the fence, till I hear from you.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(222)

DALHOUSIE, 20th Dec., 1870.

P. A. PETERSON, Esq.,

Division N :

3800 MY DEAR SIR,—I see by your diary extracts that large projections on the sides of abutments of culverts at Station 474, have not been removed, and that the contractor says he has written to me about it. He has not done so ; and if he had I should have referred him to you for instructions. I give no instruction to contractors, except through the Division Engineer.

If the culvert is too far advanced to have the projections removed, you will have to make another culvert at Station 470, as from observations of the streams converging there at my last visit, it was evident that six feet clear water-way is quite little enough.

Mr. Bertrand tells me that you have been finding fault with his mode of making the embankments. He says he makes them thus :

(Sketch.)

3810 making the bank two feet wider at the top (and only a few inches too high) ; so that when the slope is formed by the natural action of the rain and atmosphere, it will be 18 feet wide at top and a straight line to the slope stake. He will probably find himself deceived. The bank should be full out to the slope stake and full 20 feet width at top, and in loam should be an inch to the foot higher than grade, that is, for every foot in height add one inch above grade ; even then it will not be too much. He says you order him to make the embankment 18 feet at top. Let him make them just to grade if he likes ; but then you must calculate the extra height required and add to width three feet for every foot in height.

Yours truly,

(Signed)

M. SMITH.

(228)

BATHURST, December 20th, 1870.

3820 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I enclose diary extract and force returns for week ending December 17th. I expected to send cost of work up to end of November last week, but I found the chainmen had mixed up the time of grubbers and ditchers in some places where it was possible to separate them, so I have had this alteration made, and think I can send the statement to-morrow. The culvert at 474 was completed last night, with the exception of the bracing and retaining walls at the ends. Bertrand will go on and build the culvert at 481.50 provided he is allowed to put it in dry. Will you allow this ?

3830 I think he will not get his stone ready under six weeks, which will bring us to the first week in February, and by waiting till March, he can build all in cement by heating the water as he has been doing. There is very little water at this point, as you saw when you were here last, during the freshet. Will you allow a 2 ft. 6 in. by 2 ft. 6 in. culvert ? This will be amply large, unless the bottom gets filled up with ice and snows in the early part of the winter, and the spring freshets come before the ice has thawed. 2 ft. 6 in. by 3 ft. 0 in. would cost little, if any more, when the stones comes out in such large blocks as it does here. Two courses would be necessary, say 2 ft. 18 in. courses.

Did you say anything to Bertrand about the fence ? Mr. Dickey left last Sunday ; he waited over a week after he got leave from you. Messrs. Owen and Philips leave to-day.

3840

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(224)

DALHOUSIE, 22nd December, 1870.

P. A. PETERSON, Esq.,

Division N. :

MY DEAR SIR,—Herewith I send you tracing of plan of footing course, and six courses above it, of a pier of the Nipissiguit Bridge. We are not bound to furnish the contractor with such plans as this, nor do I insist that he shall carry out the work literally according to this plan, but to assist him and save him time I submit this to him as a plan that would insure good work, and I think economical. The stones Nos. 1, 2 and 3 (forming the nose of the cut water), especially are, I think, well planned, and could not be made any smaller. 3850 The stones in the body of the pier he may think rather large to handle, and if he can submit a plan that will suit him better, I shall be glad to give it fair consideration. I am going to try another plan myself of making the stones narrower at headers, thus laying a course above (longer) as stretchers. The courses I have made 2 feet thick, and six of these just come up to the angle of the cut water, but I have given the width of the bevel per foot high, so that it can easily be calculated for any thickness of courses, but I would advise, for economy's sake, the contractor to have them all two feet courses to the height of 12 feet, or angle of cut water.

3860 The footing course I have made to project 6 inches all round, and its thickness will vary in each pier, but I have taken an average height, so that none will be less than 18 inches, or exceed 2 ft. 9 in. or 3 ft. 0 in. at the utmost, or, if it does, it can then be put in 2 courses. The great object is to get as few different sizes of stone as possible.

The face stone will of course be $\frac{1}{4}$ or $\frac{3}{8}$ of an inch smaller than shewn, to allow for vertical joints, and the hearting may be allowed inch joint or more in cases where stone may be cut out of square.

Yours truly,

(Signed),

M. SMITH.

(225)

BATHURST, Dec. 22nd, 1870.

MARCUS SMITH, Esq.,

3870

District Engineer, Dalhousie :

MY DEAR SIR,—Yours of the 20th instant received yesterday. As to the projection on the culvert walls, the largest pieces have been removed, as you will see by my diary extracts sent on Tuesday, 20th instant, and the culvert may now be said to have a clear water-way of 2' 6" on each side of the centre wall ; this water-way can be further increased at any time by removing more projections. I have been finding fault with Bertrand and his foremen, all the autumn, about his banks, and I told him some time ago that I would not allow him or any of his foremen to countermand any of my orders, and that they must be strictly carried out ; what he says about his banks is untrue ; he has not one bank 20 feet wide at the top, and when they have settled they are not even 18 feet, and the sides are curved thus.

3-80

(Sketch.)

I have been constantly telling the foremen about making the sides straight and the tops at least 19 feet wide, and I only found out lately that the *heading boss* was as constantly telling the foremen to keep the sides hollow. I have always given instructions to allow one-tenth per foot for settlement, and I suppose each foreman has been told this at least twenty times. The foremen at the different cuts are being constantly changed, so that no one man is responsible for any one bank. Now that the frost is in the sides of the banks, I suppose it would not do to have fresh earth put on to make them wide enough. Bertrand or his "heading boss" will promise to do anything I ask, but they do not keep their promises. If I could suspend the foremen when they don't obey my orders, I could manage very much better. I send cost of 3890 earthwork to end of November. I have cost of masonry made out, but the prices are so startling that I want to go over the whole thing again. The first-class masonry has cost \$24.43 per yard, and the second class \$15.70, but as the second class is as good as first, I cannot account for this difference. Quarrying boulders and splitting them cost \$8.52 per yard, while the stone at the Nipissiguit has cost \$7.51 to quarry.

Could you send me the whole of the force returns of the Rough Waters Quarry. I supposed that Owen had kept copies of all returns, but I find that some of these are missing,

and the contractors' time-keepers have everything so mixed up that they can give me nothing. Bertrand is working all his quarries at Rough Waters as one, though the stone is for different contracts.

3900

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(226)

BATHURST, December 28rd, 1870.

MARCUS SMITH, Esq.

District Engineer, Dalhousie :

MY DEAR SIR,—I now enclose list of masonry, &c., to 30th November, 1870. You will see there is a wide difference between the cost of quarrying in this statement and in the statement sent to 31st October. This arises from the stone having been over estimated, as explained in my letter of 1st instant. The cost of dressing is much less at the Little River than at the Nipissiguit, and the difference cannot arise altogether from one being second-class and the other first-class. The boulders dress easier than the stone taken from the mass, they are harder, but not so tough and rise in longer pieces under the point, and I think the boulders have been better quarried, not so much powder used. The Basin Quarry is beside the sea shore, and the boulders were in good shape, and the stone was got out very easily.

Yours very truly,

P. ALEX. PETERSON.

(227)

DALHOUSIE, 23rd Dec. 1870.

P. A. PETERSON, Esq.,

Division N. :

MY DEAR SIR,—I have received your letters of the 15th and 20th instant.

3920

FENCING.—There can be no objection to fastening the top rail as shown by the sketch only it will require two bolts at each post instead of one, otherwise the rail will form no tie between the posts as it ought to do.

The fence won't last half so long with the posts isolated as it will do with them connected thus

(Sketch).

Now a bolt will weigh about $\frac{1}{2}$ lb, and cost 7 to 8 cents, but the labor will be less as the rail will not have to be reduced at the end and will thus be stronger.

POSTS.—You will see that the posts are 9 feet long, and *half* that length put in the ground except when rock prevents this. If rock comes within less than 3' 6" of the surface you will have to adopt the round log fence, and if you cannot get cedar logs, tamarack will do. Have you had specification of cedar log fence? If not get copy from Bertrand.

3930

CULVERT AT STATION 481 + 50.—You may put this in dry, except, say, 6 feet at the ends which would be put in on a mild day. Kindle a fire and run the cement in just as it is wanted. The culvert may be 2' 6" square, or 2' 6" × 8' 0" high.

Yours truly.

M. SMITH.

(228)

DALHOUSIE, 23rd December, 1870.

MESSRS. BERTRAND & Co.,

Contractors Sec. 15:

3940

SIRS,—The division engineer (Sec. No. 15) complains that the embankments are not made of sufficient width and height to allow for subsidence, that they are made hollow at the sides thus:

(Sketch.)

and that they barely exceed 18 feet in width at the top, and certainly never over 19 feet when the loose earth subsides the embankment, will then be too narrow and will have to be widened by putting fresh earth on the slopes, which is of no use unless the slopes are stopped thus:

(Sketch.)

3950 which will add very considerably to the cost of your work. Mr. Peterson complains that your "walking boss" is constantly on the point of giving contrary orders to what he has given the foreman of the gangs and persists in doing so, although he has been requested not to do so. I have to call your attention to a part of clause 14 of the contract viz:—"The engineer shall have full power to dismiss any foreman, workmen or other person employed, whom he may deem unfit for the duties assigned him, or who may in the opinion of the engineer be guilty of slighting the work, or of willful disobedience of orders, &c."

We should be very unwilling to interfere with any of your employés, but if any of them persist in giving orders for the work to be done differently from the engineer's instructions and thereby damaging the work as well as causing loss to you ultimately, there is no other course but to have him dismissed.

I am Sir, &c.,

Your obedient servant,

(Signed)

MARCUS SMITH,
District Engineer.

3960

(229)

BATHURST, 27th December, 1870.

P. A. PETERSON, Esq.,

Section Engineer, No. 15:

SIR,—We are in receipt of a letter from Marcus Smith, Esq., District Engineer, of Restigouche District, informing us that you have complained to him that our "walking boss" was constantly in the habit of giving contrary orders to what you had given, that he persisted in doing so, although he had been requested not to do so.

3970 We are not a little surprised to receive that communication, as when you complained of the above grievance, you were answered that it would be immediately redressed, and orders were given accordingly. We should therefore feel greatly obliged if you would give us the name of any of our men that disregarded your orders, and at what time it occurred, so as to enable us to prevent it in future.

For the better execution of your orders, it would be desirable that they would be given either to Mr. Bertrand himself, or to the Superintendent representing him on the works in his absence.

We remain sir, your obedient servant,

J. B. BERTRAND & CO.

Contractors for Section 15.

3980

(290)

BATHURST, December 29th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

My DEAR SIR,—I now enclose you force returns for Rough Waters Quarries. At first I sent in time for four quarries, but now the foreman tells me that they are all mixed up, and that they do not keep them separate in any way. Holt has charge of all, and under him there are two foremen of stone cutters and one foreman of quarrymen. The stone cutters are constantly being shifted and so are the quarrymen, so I think I shall have to
3990 keep the whole thing as one quarry. The contractor has now commenced to haul stone away, could it not be arranged that the stone would only be returned when delivered on the ground when it is to be used. The stone is now scattered over a wide extent of ground, and in some places the quarried stone is piled over the *dressed*, so that it is impossible to get at the exact quantity. Some of the excavations are taken out in such irregular shapes that I think the quantity could be come at much nearer by measuring the embankment, will this be allowed? and if so, what percentage on the *present* measurement must be allowed for shrinkage? Some of the excavations are in this shape :

(Sketch.)

The overhanging parts are held up by frost. The cut at the Tête-à-gauche is
4000 being taken out in three lifts and the section is much more irregular than the above.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(291)

BATHURST, Dec. 29th, 1870.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I have written Bertrand about fencing, in accordance with your letter of 23rd inst. I also informed him that the culvert at 481.50 would be a box 2' 6" in

width and 8' 0" in height, and that it might be built dry with the exception of four feet at
 4010 each end. I told him that I did not think it could be profitable to build now, as he would
 be certain to meet with the same difficulties in the way of water, &c., as he had met with in
 attempting to pave the lower end of the culvert at 474, and that it would be much better in
 every way for him to put his whole force at work in preparing stone for all his culverts during
 the winter season, so as to be ready to build in the spring.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

P. S.—I have just heard through the Division Engineer on No. 16, that Bertrand has
 a gang of men at work quarrying stone at Bass River. I do not know why they commenced
 or for what contract the stone is for. I have asked the contractor several times to give me
 4020 notice when he is about to commence work at any point, but he has never done so.

P. ALEX. P.

(232)

BATHURST, 30th Dec., 1870.

MARCUS SMITH, Esq.,

Dalhousie :

MY DEAR SIR,—I herewith send you a survey of the west bank of Armstrong's
 Brook, giving the position of the two trenches made by the contractors, to show the depth
 from the surface to the rock; also sections of the same.

The rock, from external appearances along the face of the bank, seems to be what is
 called the old red sandstone.

4030

I remain,

Yours truly,

(Signed)

CHAS. ODELL.

(233)

DALHOUSIE, 30th December, 1870.

P. A. PETERSON, Esq., Division N :

MY DEAR SIR,—I have your two letters of yesterday. You had better return the force
 engaged at *all* the quarries near Bathurst, as well as all the stone quarried and dressed as
 being for your division. For Bertrand may say what he likes about the stone at Rough
 Waters being for several divisions, I find that at the rate he has been getting out and
 dressing stone these last four months—the best season of the year—it will take several years
 4040 to supply the stone necessary for Contract 15 alone, so that we will only enter the stone for
 other contracts after it is delivered. But we ought to have legal possession of any stone that
 we enter in the certificate as materials; and I shall see Morse about it, and have some legal
 process gone through. But for your division, I think you might see Des Bressay, as he is
 on the spot. If he has power to act for the Commissioners other than the verification of
 titles, he had better see Bertrand, and ascertain what right he has to the quarries, and if the
 dues of the owner are paid up, or what they amount to each month, so that we can keep
 back the amount in certificate, for he will have the first claim, whatever we may do.

Yours truly,

(Signed)

M. SMITH.

4050 (284)

BATHURST, 8rd January, 1871.

MARCUS SMITH, Esq.:

MY DEAR SIR,—I herewith enclose the monthly progress estimate for December, 1870. Your joint telegram to Mr. Peterson and myself only reached me at 6 p.m., which was so late that I deemed it useless to send a telegram, having all the papers ready for the mail to-night.

I have not returned the granite delivered from the Rough Water quarries, as directed by a telegram received from Mr. Blackwell to-day. There are some 60 yards, that they delivered at Belledune wharf in the latter part of November and beginning of December, which they dressed there, and have since delivered them on the line near Station 220. I believe they are intended for Belledune River Bridge.

I remain, yours truly,

(Signed)

CHARLES ODELL.

8rd January, 1871.

(285)

(By Telegraph from Bathurst.)

To M. SMITH:

Bertrand leaves for Dalhousie to-day. Will take deed of quarries up with him. Will send estimates up to-night.

(Signed)

P. A. PETERSON.

(286)

DALHOUSIE, 4th January, 1871.

4070 CHAS. ODELL, Esq.

MY DEAR SIR,—I shall be glad if you can let me have a statement of the approximate rates that the several classes of work on your division actually cost the contractor, as near as you can ascertain from the reports of the force employed, and the expenses of that force over a *given time*, divided into the work done in that time, taking a few examples of similar works done under different foremen or sub-contractors. I don't require the whole of the work, nor even the whole of any one cutting; but take, say three months' work, or more or less, according as opportunity has been afforded for ascertaining the cost with the greatest certainty. With remarks of your own, as required in my circular letter of December, I am now preparing my report, and should like to finish it this week.

4080

Yours truly,

(Signed)

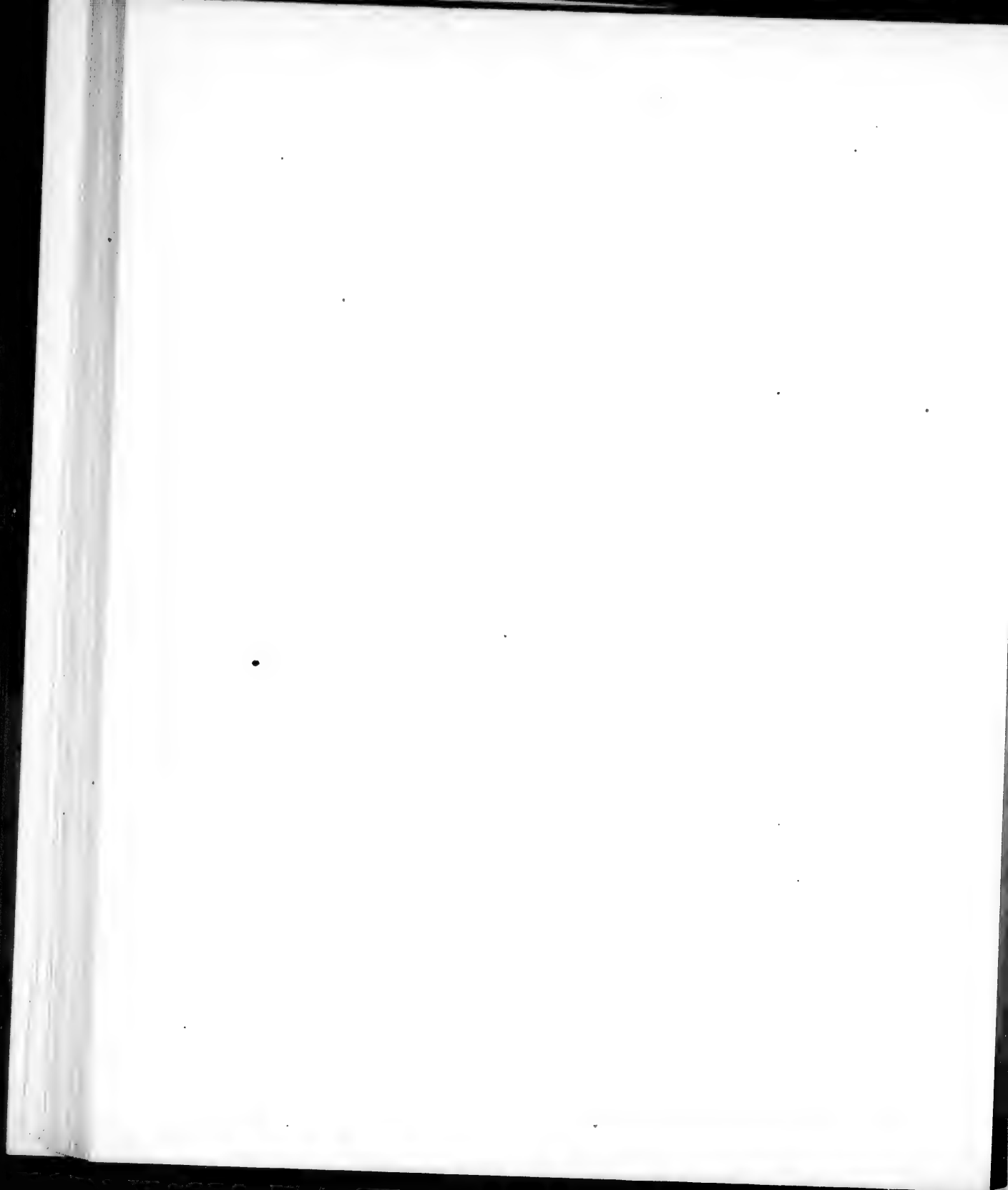
M. SMITH.

(287)

DALHOUSIE, 4th January, 1871.

P. A. PETERSON, Esq.:

MY DEAR SIR,—In looking over the drawings made for cutting the stone for the piers of the Nipissiguit Bridge. I find Mr. Blackwell has made a mistake in the course next the the footings, and consequently in the footings also. The breakwater in this course next



4090 footings only batters the same as the sides of the piers. The first five courses from the top will therefore be right, and the top of the sixth course, but the bottom of the latter and the footings will be wrong; so please cross them out before sending drawing to the contractor, or if they are sent, you must send him a note not to use the footing course and the course next above. There is also a change made in the length of the body of the piers, which are 18 feet, instead of 22 feet, according to drawings just received from the Chief, so you had better just send the drawing of the cut-waters and a few feet of the pier at each end to the contractor, and I shall have a new set of drawings made out as soon as possible. I find the abutment is only 20 feet wide instead of 22 feet, as we have it. Please send me a section across the abutment as built, so that I can arrange the plan for reducing it to 20 feet.

Yours truly,

(Signed)

M. SMITH.

(238)

BATHURST, 4th Jan., 1871.

4110 MARCUS SMITH, Esq.:

MY DEAR SIR,—Since I sent you the tracing showing the position of the rock at Armstrong's Brook, I have thought that possibly an arrangement might be made to purchase the mill interest out, which would enable us to put in quite a small structure, (at much less expense than at present contemplated,) as the stream in itself does not amount to much. The mills are in a very dilapidated state, and the amount of work done by them is really very insignificant.

A great part of the logs brought to the mill floated along the bay shore and hauled in from the mouth of the brook, or else a few brought from the rear lots and rolled down to the mill from the bank close by north of the railway line.

4120 There are no logs or lumber passed down the stream, as it is utterly impossible to do so.

I mention those facts in order that, should you deem fit, the project might be taken into consideration when the subject of the tunnel is brought to notice.

I remain,

Yours truly,

(Signed)

CHAS. ODELL.

(239)

DALHOUSIE, 5th January, 1871.

CHAS. ODELL, Esq.,

Division M:

4130 MY DEAR SIR,—Herewith I return your certificates for December, which, from your letter accompanying them, and from comparing them with those of the previous month, are evidently incorrect. First, in regard to my telegram to yourself and Mr. Peterson, "I say 'take care that none of the granite is returned twice.'"

I was afraid that this might happen, as I was informed that Mr. Peterson commenced measuring up last week, and the contractors commenced hauling stone from Rough Waters

on the next day, and I was afraid some of this might arrive on your division before you had finished measuring ; but from your note of the 8rd it appears that 60 yards was delivered at Belledune wharf *in the latter end of November and beginning of December*, and is now delivered on the line near Station 220. Now, as Mr. Peterson has instructions (same as yourself) to
 4140 return *all* the materials that are on the ground *on the day of measurement, and nomore*, he has not of course returned these 60 yards that have been taken away, and *were not on his division on the day he made the last measurements*. Now, as you have not returned these 60 yards either, it is evident they have not been returned at all for December. See Mr. Peterson about this.

Again the returns for November show :

Rough stones delivered.....	95
Cut stone	40

On the December returns you show :

Stone delivered.....	70
Cut stone	40

But you show also in the last column that exactly these quantities were delivered during the month of December, and as I know that the stone in the November returns was near Station 810 (or the greater part of it, at least), I would infer that all that was there in November had been taken away to be put in masonry somewhere, and a quantity returned for December put in its place, or delivered somewhere.

This confusion arises in your persisting in treating *materials as works*. I have to repeat that you have nothing to do with the *time* that materials were delivered, but simply to enter in the *first column*, all the materials that are on your division *on the day* of the last measurement ; and that no entry of materials is to be made in the last *column*, as that
 4160 would only lead to confusion ; for in some months, instead of any being delivered during the month, you will find that they have diminished by having been taken away and put in works. Please return these corrected as soon as possible.

Yours truly,

(Signed)

M. SMITH.

P. S.—The stone that has been taken down from the abutment at Station 808 might also be entered as materials, for though it has been paid for as masonry, yet according to new design, the whole quantity of masonry, including the abutment taken down, will be less than the quantities in schedule of works.

M. S.

4170 (240)

DALHOUSIE, 5th January, 1871.

P. A. PETERSON, Esq.,

Division N :

MY DEAR SIR,—Herewith I send you general plan and specification of bridges and culverts for the passage of water under approaches to level crossings.

You will perceive that these will meet almost any case that can occur from a cutting or very low embankment to the highest embankment that can be required. I have specified them to be generally of cedar or tamarack, but if what is said of Prince's pine be correct, it might be used generally, except for stringers, for which I think it will not be suitable, on account of having so many knots in it. You will get one of your rodmen to make a copy the specification, then let Mr. Odell have it to get copied, and return the original to me. I shall send Mr. Odell a tracing of the drawing.

You will understand that the rodmen are expected to act as junior assistants, and not merely to hold up a rod, which any common laborer can do. They must assist in setting out and making measurements, make tracings and copies of any documents and check calculations. If they cannot or will not do this you must report them, and if they are not capable of doing their duties, they will have to resign, and competent men will be put in their place.

Yours truly,

(Signed)

M. SMITH.

4180 (241)

BATHURST, January 5th, 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—I enclose force returns for Rough Waters Quarries ; also, plan and section of abutment (as built) of the Nipissiguit Bridge, asked for in your letter of 4th inst.

I had not sent tracing of pier to contractor and made the changes, as directed this morning. I went out to the quarries this afternoon to give the foreman the tracing and to explain the drawings to him, but found he had not yet returned from St. John. As soon as he returns I will hand them to him, and see what changes he will want to make in the arrangement of the stones, so as to suit his quarry, &c.

4200

I see you have drawn the stones running half way through the wall in many cases. I feel quite certain objection will be taken to this, and they will want to arrange the stones something like the sketch below, with wide spaces between the joints, 9" back from the face, and most likely want to make the centre of rubble work.

(Sketch).

I would be glad if you would send me a little sketch of the greatest departure from your plan in the way of irregular joints, &c., that can be allowed.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(242)

QUEBEC, 5th January, 1871.

4210 C. S. Ross, Esq., Secretary,
Intercolonial Railroad Commission,
Ottawa :

SIR,—We have the honor to request that you will lay before the Railway Commissioners the following application on the part of Messrs. J. B. Bertrand & Co., contractors for sections Nos. 9 and 15 and ourselves.

We desire to know, whether to the extent of our finding it necessary in order to facilitate financial operations in connection with the contracts of Messrs. J. B. Bertrand & Co., and ourselves, to transfer as collateral security for advances made to us the fifteen per cent. retained in the hands of the Government against our contracts. The Commissioners
4220 will facilitate any such arrangement by accepting or otherwise recognizing such transfer.

Of course any assignment would be made subject to all the conditions to which we are liable.

We have the honor to be, Sir,

Yours respectfully,

J. B. BERTRAND & Co.

Per F. X. BERLINGUET.

F. X. BERLINGUET & Co.

(248)

DALHOUSIE, 7th January, 1871.

MARCUS SMITH, Esq.,

4230

District Engineer :

DEAR SIR,—Mr. Bertrand wishes us to inform you that he has been requested by Mr. Peterson to produce all deeds and papers establishing our right of property on the quarries, roads leading to them, and places where the stone is deposited ; but as we could not get them before the time he had to send his report, he requested that we should produce them to you. Mr. Bertrand got all his deeds, agreements and receipts, and called on you yesterday to settle that point, but unfortunately in talking of other things it escaped his memory, and he only thought of it this morning before leaving, at too early an hour to call on you.

We hope it will not make any difference, as you intend to meet him in a few days. He will show you the papers ; we have them all, and everything is paid for, so there can be
4240 no difficulties about us being the rightful owners.

We remain, &c.,

Your obedient servants,

(Signed)

J. B. BERTRAND & CO.,

Per W. E. Blumhart.

(244)

BATHURST, 10th January, 1871.

MARCUS SMITH, Esq.,

Dalhousie :

MY DEAR SIR,—I herewith transmit to you the estimated cost of various portions of the work on which I could obtain sufficient data.

4250

The earth and rock work are taken from two to four months work on each cutting. You will perceive that the earth price is very high, especially in the upper or eastern division of the line which is attributable to many *boys and old men* been employed and rated the same

as *able-bodied men*. Also the foremen being chiefly farmers from the neighbourhood without any experience.

The masonry I have made out from the best data. I would procure as regards the quarrying and delivery of stone from *Grand Anse*, I am guided by information obtained from Mr. Cole, who was in charge of that work, and informed me it cost at least from \$8 to \$8.50 delivered on the line.

I have no means of ascertaining the amount of steel used in the rock cuttings, but I 4260 have charged the *powder* in the two *main rock cuts*, viz: At Station 529 to 533 and 762 to 775, which I obtained from the clerk in Mr. Bertrand's office.

I remain,

Yours truly,
(Signed),

CHAS. ODELL.

(245)

BATHURST, Jan., 10th 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—I enclose your returns and diary contracts. I send the Rough quarries by themselves, as Bertrand tells me that he now intends to work each contract 4270 separately. You will see I have sent the *stone cutters* for No. 3, 6 and 15, but the quarried stone still seem to be joined, as I cannot find out which contract the different quarrymen are working for.

Bertrand has just commenced to cut stone for No. 9 and next week there will be a return for that contract.

Yours very truly,

(Signed)

P. A. PETERSON.

(246)

11th January, 1871.

MEMORANDUM.

It has been stated that the work on Sections Nos. * * 3, 6, 9 and 15, * * is not pro- 4280 gressing satisfactorily or at such a rate that the lines will not likely be completed without very great delay.

The contracts for these Sections were signed at the following dates, viz:

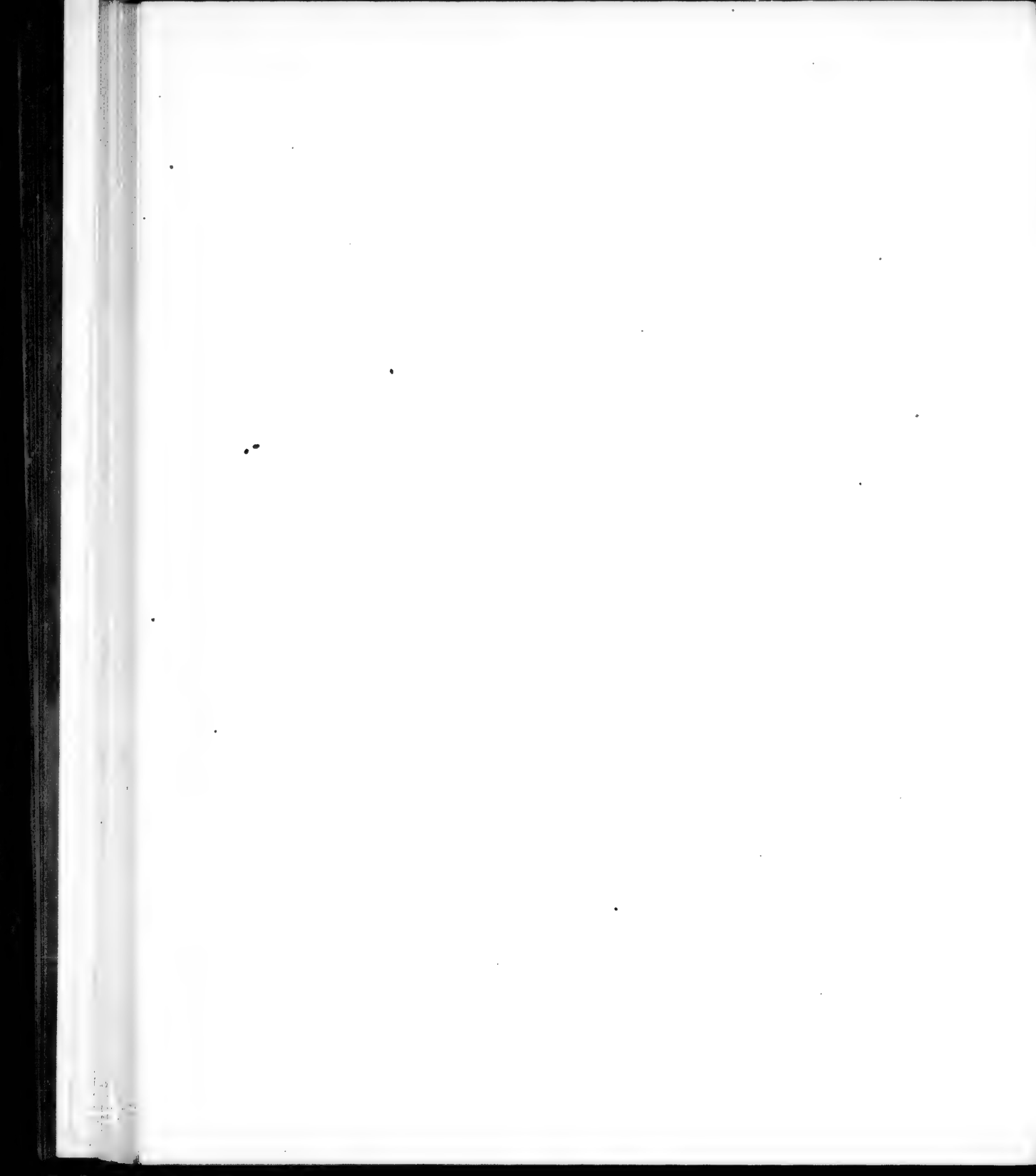
No. 3, 25th May, 1870

" 6, 6th Oct., "

" 9, 26th Oct., 1869.

" 15, 15th June 1870.

As regards Nos. 3, 6, 9 and 15, it is stated that the main portion of the work done is of that class which requires only the most common labor, whilst the work still to be done requires skilled labor of which there is not sufficient in Canada. The masonry is said to be



4290 far behind—not 5 per cent. having been yet done. Earthwork is said to be about 85 per cent. done.—Rock, about the same.

It is said the contractors have not laid out their work well, having neglected the heavy cuttings and masonry, and that this will embarrass them in finishing.

It is said the quarrying is not being properly pushed, and that not nearly enough of stone will be got out during this winter to enable masonry work to be pushed rapidly next season. It is said no quarrying is going on except upon section No. 15, and that at the present rate it will take $4\frac{1}{2}$ years to complete the masonry, and the cutting of the stone at the present rate will take double that time. Also at the present rate of progress it will take 21 years to complete the masonry on Sections 8, 6 and 9. The transportation of the stone 4300 is said to be not properly arranged for. Such was said to be the state of affairs about the middle of December.

About three weeks later it was stated that the contractors Nos. 8, 6, 9 and 15 were employing a large force of men and were anxious and willing to do what is best if they only knew how. They are reported to show no signs of flagging.

The contractors on Nos. 8, 6, 9 and 15 assert that they will complete their work in time. They complain that they are largely under estimated. Their total contracts amount to \$1,635,000. They have had estimates to 31st December, \$204,000 or about 12½ p. cent. They contend they ought to have received at least 50 per cent. more than that.

Mr. Schreiber is requested to visit these seven contracts here referred to, and to report 431 fully and without reserve to the commissioners his opinion about them, taking the foregoing statements on both sides as the basis of his investigations. The Commissioners will treat Mr. Schreiber's report as confidential. They are very anxious to have the work well done and promptly executed, and at the same time they are desirous of treating the contractors fairly. If their preparations are good they ought to be sustained, but if they are not likely to finish their work, the Commissioners want to know the fact.

The Commissioners wish to know Mr. Schreiber's opinion as to the capacity of the contractors in respect of experience and knowledge to carry on such works, and also his opinion as to the economy they are exercising in carrying on their work.

(Signed)

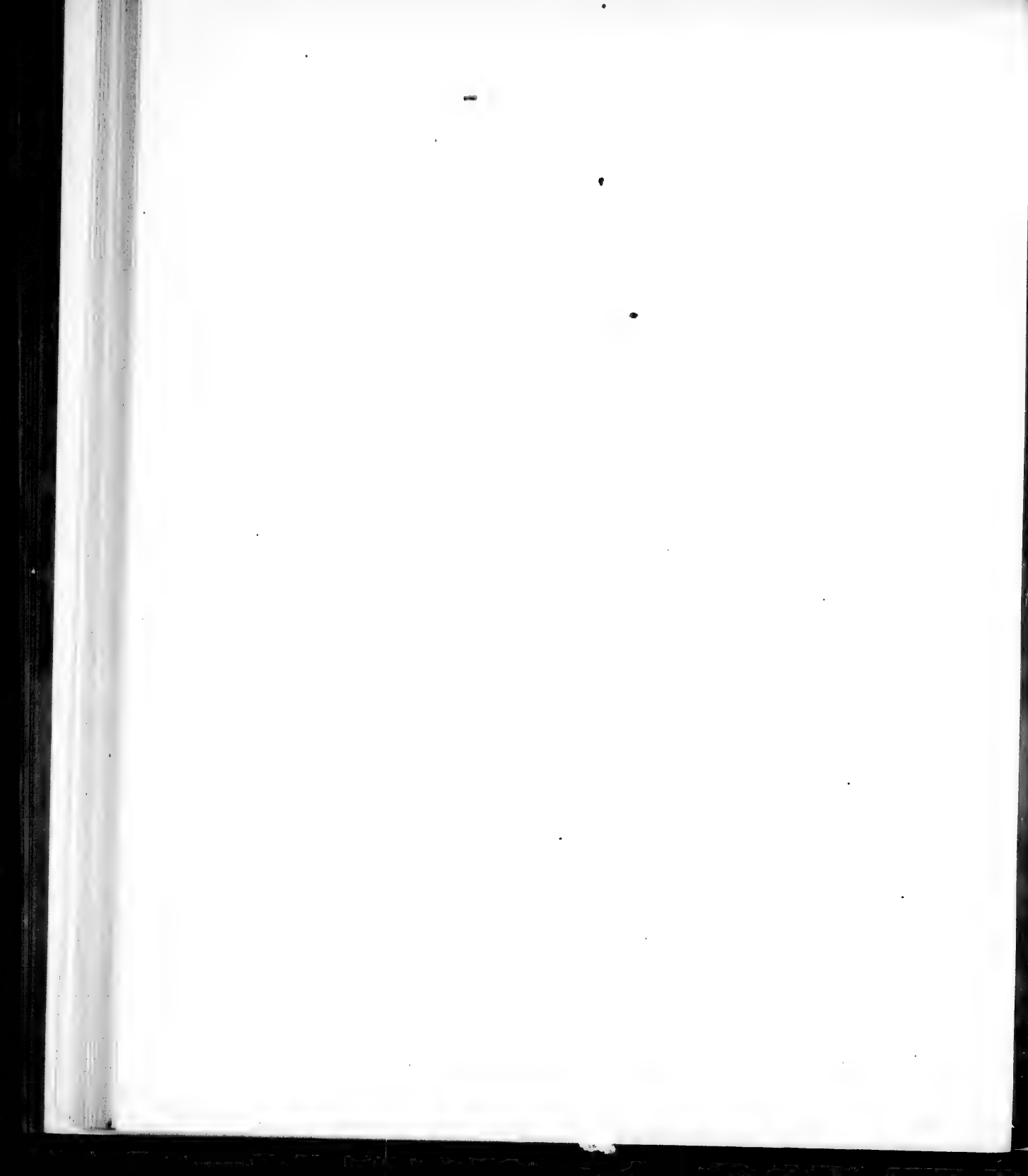
A. W.

4320

E. B. C.

C. J. B.

A. W. McL.



(247)

STATEMENT showing total quantities on Sections Nos. 9 and 15, and quantities done at 30th November, 1870.

	Section No. 9.		Section No. 15.	
	Total.	Done.	Total.	Done.
Clearings, &c., acres.....	401	229	150	88
4330 Fencing, lineal feet.....	227,500	9,000	122,500	
Rock excavation, cubic yards.....	82,000	11,040	6,500	218
Earth excavation and borrowing, cubic yards...	482,000	127,428	630,000	95,000
Drains, lineal feet.....	5,400		15,000	298
Riprap, cubic yards.....	800		750	
Concrete, cubic yards.....	800		600	
First-class masonry, cubic yards.....	6,800	200	12,100	
Second-class masonry, cubic yards.....	6,700	260	4,000	74
Paving, cubic yards.....	880	14	700	140
Foundations.....	3,458		3,045	
4340 Bridge superstructure.....	6,160		40,700	
Road crossings.....	4,400		5,500	
Special.....				

NOVEMBER ESTIMATE.

No. 8, materials delivered.....	\$133
No. 6, " ".....	nil
No. 9, " ".....	95
No. 15, " ".....	455
Total.....	\$683

The above is returned as the sums due to the contractors on the four contracts for 4350 materials delivered, mainly, of course, stone, but *not* finally worked into place, and therefore not fully paid for per yard. This is important, *if correct*.

(Signed)

C. J. B.

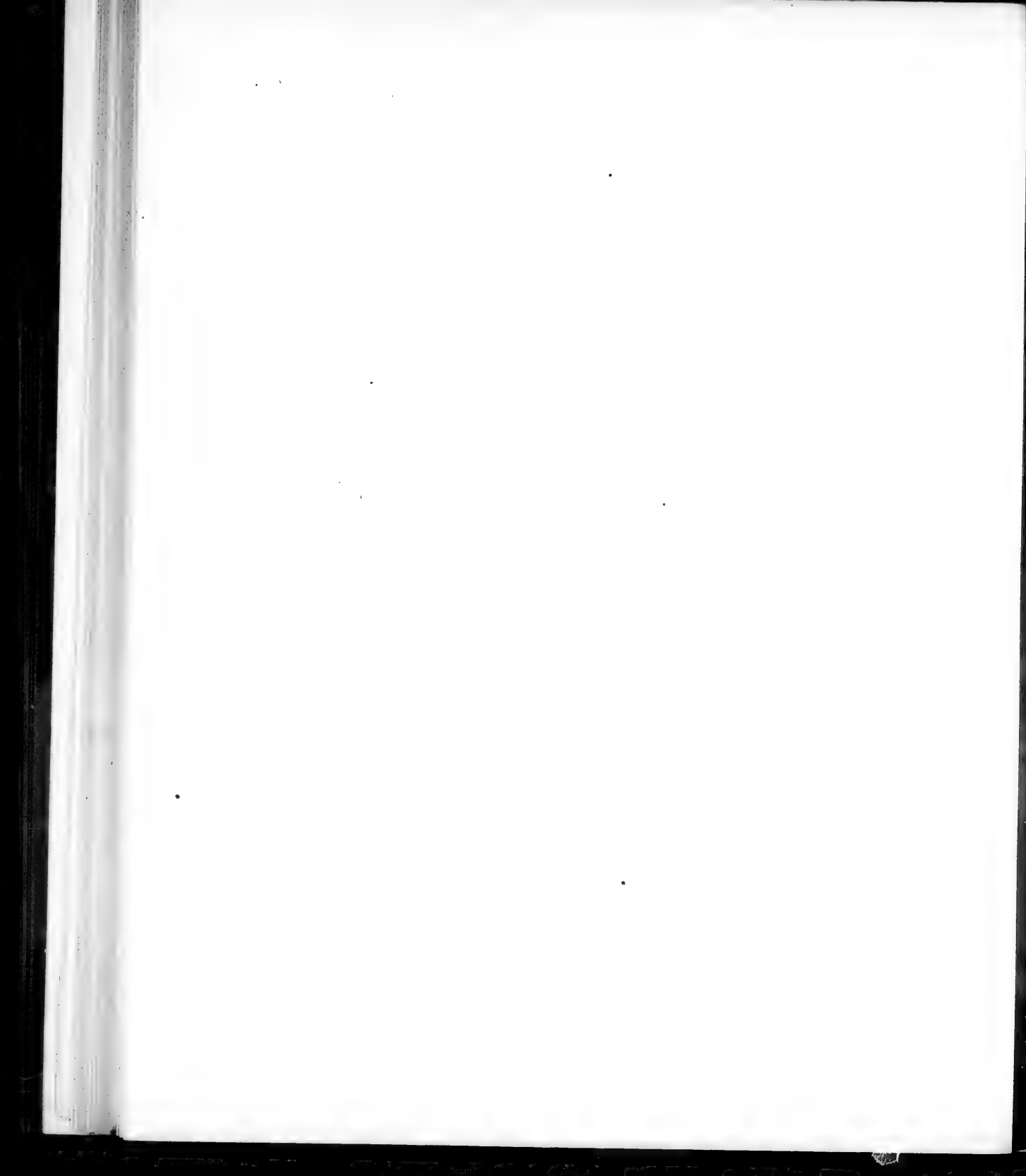
INTERCOLONIAL RAILWAY,
COMMISSIONER'S OFFICE,

(248)

OTTAWA, 18th January, 1871.

MARCUS SMITH, Esq.,

DEAR SIR,—I duly received your letter of 16th December and 8rd inst., and as the latter contained the intimation that the contents of the former were to be embodied in a formal report to the Chief Engineer, I felt quite justified in reading both letters confidentially 4360 to my colleagues.



The statements contained in your letter of 16th December, being entirely at variance with the representations of the contractors as to their present position, and preparations for prosecuting the work in the future, the Commissioners decided (as a matter of justice to you and ourselves) to adopt the same course as that acted upon in reference to Section 10, where there was a misunderstanding between the District Engineer and the contractors, namely, to send C. Schreiber, Esq., C.E., with instructions to make a confidential report upon the present position of the contracts in your district.

Mr. Schreiber will not be advised of your opinions on the subject, but will be asked to report on the various points raised in your letters; and as he will act discreetly, 4370 I trust you will facilitate his enquiries.

Yours respectfully,

(Signed) A. WALSH.

OTTAWA, 17th January, 1871.

(249)

Messrs. J. B. BERTRAND & Co.,

Quebec.

GENTLEMEN,—Your letter of the 5th inst., was submitted to the Board yesterday, and I am directed to inform you, that Government does not recognise any irrevocable power of attorney, or assignment of contract funds.

The Commissioners would not recognise any arrangement you might make about the 4380 percentage (which is 10% not 15% as you inadvertently call it). Transfer of your right to the percentage would be a mere debt of honor between parties, and could not be called a security for money.

The Commissioners are desirous of assisting contractors in every practicable way; but it must be stated what the position of any transfer would be.

I am, Gentlemen,

Your most obedient servant,

(Signed)

C. S. ROSS,

Secretary.

(250)

21st January, 1871.

4390 CHAS. ODELL, Esq.,

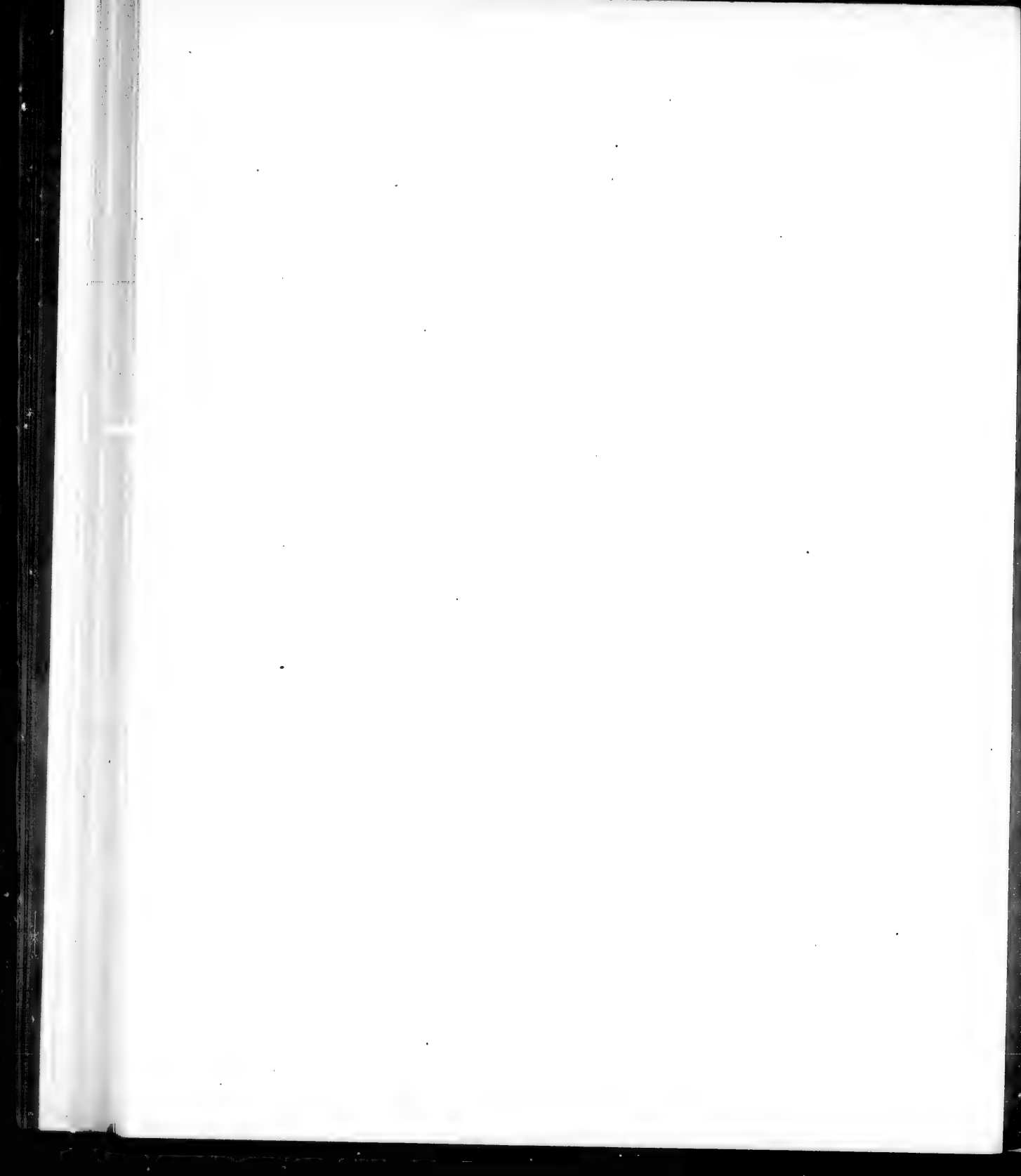
Division M:

MY DEAR SIR,—Herewith I send you a specimen of the form in which I want the returns of cost of work kept. I shall not make another report before the end of March or April, but in the mean time you should enter up any cutting or other piece of work as it is completed, if any should be completed, so as not to have too much to do at the last. I expect to leave on Monday, and bring this with me but the weather does not look very promising.

Yours most truly,

(Signed)

M. SMITH.



4400

INTERCOLONIAL RAILWAY,

CHIEF ENGINEER'S OFFICE,

OTTAWA, 25th January, 1871.

(251)

M. SMITH, Esq.

MY DEAR SIR,—Mr. Schreiber will be round on a special service soon. I would like you to render him any assistance in your power. The Government will substitute iron for wooden bridges, on certain conditions: they require, amongst other things, that the concurrence of the contractor be first obtained, in order to prevent claims for indemnity or extras. Mr. Schreiber will explain fully when he sees you.

Very truly yours,

4410

(Signed)

S. FLEMING.

DIVISION M, INTERCOLONIAL RAILWAY, ENGINEER'S OFFICE

RESTIGOUCHE DISTRICT.

(252)

BATHURST, 27th January, 1871.

MARCUS SMITH, Esq.,

MY DEAR SIR,—The contractors have applied to me for specifications and plans of wooden bridges for farm crossing and public roads. The former I have, but the plans I have not, will you please have them forwarded at once?

Yours very truly,

(Signed)

CHARLES ODELL.

4420

(258)

OTTAWA, 28th January, 1871.

4430

MY DEAR SIR,—Referring to your letter of January 6th, where timber is wanted in foundations, we ought to see that the best timber to be found within reasonable distance of the place should be secured, and I do not think there ought to be much difficulty in getting all that is needed of good quality in each locality. In every case where there is any doubt of the solidity of the sub-stratum, and the use of timber considered advisable, I think it ought to be laid with concrete. The timber should be flatted to 6 inches, 8 inches, or 12 inches, according to the height of masonry and other circumstances, and laid about say 18 inches apart, filled between with concrete for the first course; in the second course the timber should be laid the same distance apart and across at right angles to the timbers of the lower course; this also packed solid with concrete of good quality will make a firm and uniform basis for the masonry. Under all ordinary circumstances timbers 8 inches thick and 12 inches wide laid as above, across each other, should answer every purpose. In special cases, when there is any doubt, sheet piling might be driven around the platform. I see the section of borings at Christopher's Brook shows hard pan or rock; in this case timber ought not to be required. I will write you on the subject of Christopher's Brook to-morrow.

Yours very truly,

(Signed)

SANDFORD FLEMING.

(Sketch.)

P. S.—The above will illustrate my meaning ; by leaving the timber open as shown, you will have all the advantage of a platform, while the whole will be rendered more firm and solid by the use of concrete filling up every interstice ; besides, you have the weight borne by a great number of concrete pillars between the timbers, should the latter ever perish, which is doubtful.

S. F.

(254)

BATHURST, 1st Feby., 1871.

MARCUS SMITH, Esq.

MY DEAR SIR,—I herewith enclose the monthly progress estimate for January, by which you will perceive there is but a small amount of work done, of course they have had a great deal of broken weather to contend with ; but the amount of work done appears small for the force employed.

I remain, yours truly,

(Signed)

CHARLES ODELL.

(255)

OTTAWA, 3rd February, 1871.

MY DEAR SIR,—I have had all the General Plans and Schedules, &c., of work on the whole line bound in one book for you ; they will be forwarded at the first opportunity.

I am extremely anxious to have, with as little delay as possible, exact drawings of every yard of masonry executed on each contract up to the end of 1870 sent to this office as records. I enclose what may be considered a sample drawing, and I should explain that while my object is to have them all uniform as suggested in my letter to you of date December 16th, 1869, I do not care so much about them being finely got up with neat printing, &c., or even to the same scale, or any particular scale as to have the information given accurately. If the drawings require to be copied or changed to another scale so as to bring them all to one size of paper, it can be done in this office, I shall probably have them photographed, and if so, I will furnish you, when done, with a complete set in book form. Pray refer to my letter of 16th Dec., 1869, again.

Yours very truly,

(Signed)

SANDFORD FLEMING.

MARCUS SMITH, Esq.

(256)

February 4th. 1871.

4470 SANDFORD FLEMING, Esq.,

Ottawa:

Your letter received ; am instructed to go direct to Bathurst.

COLLINGWOOD SCHREIBER.



(257)

BATHURST, February 7th, 1871.

MARCUS SMITH, Esq.

DEAR SIR,—I received a letter from Mr. Fish, of Contract 9; he informed me that the contractor had began to deliver stone at Station 889. Yesterday, I visited Contract No. 9, Station 889; examined the stone, it is a kind of lime stone; it does not come out in no regular beds. I think that it will waste and open with the weather in scales of about $\frac{1}{8}$ of an inch in thickness. I then proceeded to the quarry, $2\frac{1}{4}$ miles back in the woods; examined the quarry. I found it could produce no better stone than what is delivered. I saw some stone that had been exposed to the weather, they were all split open; I do not think the stone is fit for railway masonry; I have sent to you per Carter's stage, samples of the stone. Please let me know what I am to do.

Mr. Odell's absence, I have taken the liberty to write you.

I remain, yours,

JOHN FOTHERINGHAM,

Inspector of Masonry, Contract No. 15 and No. 9.

(258)

INTERCOLONIAL RAILWAY,

4490

OFFICE OF THE CHIEF ENGINEER.

OTTAWA, 9th Feb., 1871.

MARCUS SMITH, Esq., Dalhousie.

MY DEAR SIR,—I have your letter of January 27th respecting timber for overhead bridges, you are quite right with regard to the intention to use pine for all these bridges, and there ought not to be much difficulty in getting the several quantities needed in the district of country where they are wanted. Should, however, this be impossible, I do not see any great objection to use cedar, but the design of the bridges would have to be modified in order to suit this soft description of timber. Suppose all but the stringers were made of cedar, the latter of pine, the cedar will last longer and we only require to proportion the different numbers of the bridge, so that we will gain all the strength required; of course in using cedar it will require to be perfectly sound, large trees are usually rotten in the heart.

Yours very truly,

(Signed)

SANDFORD FLEMING,

(259)

BATHURST, Feb. 9, 1871.

MARCUS SMITH, District Engineer,

Dalhousie:

DEAR SIR,—I enclose force returns for Rough Waters, which I was unable to send on Tuesday.

Bertrand will soon have culvert through cut at 465. I suppose I had better have contractor make a road along the north side of cut, and cross the line at 470 for the present.

The dimensions I sent you for bridge at this point were for a base of 22 feet, but I think the contractor will now borrow from this cutting to make embankment between 440 and + Middle River and so, the base will have to be widened to 80 feet. Will you lengthen the two end spans of the bridge, or narrow the cutting at the bridge site?

Will you give Mr. Ferguson cattle guards at his crossing at 880? I think as we take away this culvert we should give him cattle guards, and then his grievance will be reduced to a minimum.

Yours truly,

(Signed)

P. ALEX. PETERSON.

4520 (260)

DALHOUSIE, 26th Feb., 1871.

C. ODELL, Esq.,

Division M:

MY DEAR SIR,—I wish you to be very particular, both in measuring the work executed and the materials delivered. Mr. Schreiber has been here to report on the progress made by the contractor, and they as usual complain that less work is returned than they have done; but they have made no challenge against any particular work, but remarked that the rock cutting from Station 762 to 775 is nearly finished, and (by schedule) contains 12,223 cubic yards, while the total rock returned is 15,417 cubic yards, leaving only somewhere about 3,500 for cubic yards rock done in all the other cuttings. I don't know that they have done

4530 any more than this.

* * * * *

MARCUS SMITH.

DIVISION M:

RATES FOR MATERIALS—FIRST CLASS STONES.

(Accompanying above letter.)

	per c. yd.
Granite, Cut Delivered on line.—.....	\$7 00
“ Rough Blocks.....	8 50
Free-stone or Lime-stone, Cut and delivered on line.....	6 00
“ “ Rough Blocks.....	4 00

4540

SECOND CLASS STONE.

Cut, and delivered on line.....	\$4 50
“ at quarry	8 50
Rough blocks delivered on line	2 00
“ at quarries	1 00
Backing, delivered on line	1 00
“ at quarries.....	nil
Fence rails and posts, each	0 05

These must be of cedar or tamarac, no white spruce or balsam allowed.

(261)

DALHOUSIE, 26th February, 1871.

4550 P. A. PETERSON, Esq.,

Division N :

MY DEAR SIR,—I wish you to be very careful in measuring the stone up this month ; and, to save time and for future reference your cut stone should be numbered with paint, and you would probably require two colors, say red and blue ; one color to number all the stones consecutively as you measure them, where they are being cut, and the other color to number them as they are delivered on the line, beginning with No. 1 at each place on the line. This would appear to cause some confusion in having several numbers on one stone, and it might do to take the numbers at the place of delivery on the line, as the stones were numbered where they were cut, but probably a number of stones may be delivered on the 4560 line without a number at all, and certainly those delivered uncut will be so—so that it will be best to re-number them, and add a letter for distinction—say 20 N.

In your certificate, I wish you to enter the following in dollars instead of quantities, viz :

and crossings and divisions.

Materials delivered.

Omissions and contingencies.

But in the telegraph sheet, which you must always send with the others, the details of quantities and prices worked out will be entered—if there is not room you must pin a piece of paper with a memorandum of details enclosed in a schedule of rate for present 4570 use, subject to revision as the work progresses.

Yours truly,

(Signed)

M. SMITH.

(262)

BELLEDUNE, 4th March, 1871.

MARCUS SMITH, Esq.

MY DEAR SIR,—I herewith transmit to you the certificates of work done on Division M for the month ending 28th February.

I have entered the materials delivered in dollars, as directed by your letter of the 26th ult. With reference to the two cuttings, viz.—that from 762 to 775, and 520 to 535,

They have always been measured exactly as we found them. And, as you are 4580 aware, there was a large proportion of gravel found in the first of these ; it would, of course, materially lessen the quantity of rock.

This, Messrs. Bertrand & Co. knew and understood long ago, and I am satisfied the returns are correct.

There are some 150 yards of rough stone delivered at or near Station 810 to 900, but as the Masonry Inspector has decidedly condemned them, I have not entered it in my certificate.

Yours very truly,

(Signed)

CHARLES ODELL.

(263)

BATHURST, March 4th, 1871.

4590 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

MY DEAR SIR,—The contractor wants plans of bridges at Little and Middle Rivers, as he wishes to commence dressing stone for Middle River. I have informed him that he can cut for four feet walls, as shown on sheet No. 20, but his foreman has sent me in word that he wants a plan. Shall I give him a plan or will you send me one?

Yours very truly,

P. A. PETERSON.

(264)

BATHURST, March 8th, 1871.

4600 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I enclose plans of masonry built, as asked for in Chief Engineer's letter of February 8rd, 1871.

There was no paving or retaining walls shown in the sample drawing, but I have shown them, so that I think the amount done will be easily seen.

Bertrand has bought stone from W. Munro, who was quarrying on the south side of the Nipissiguit River ; he is now delivering it at the east abutment of the bridge.

4610 The stone from Bass River is being hauled very slowly. On Monday I could only find about a dozen pieces on the line. There are only three teams hauling, and they haul about one load per day.

Yours very truly,

P. A. PETERSON

(265)

BELLE DUNE, 9th March, 1871.

MARCUS SMITH, Esq.

MY DEAR SIR,—I herewith transmit to you a detailed abstract of the amount of work done on Contract No. 9 up to end of January, 1871. Also materials delivered on line at the end of November, 1870, as requested in Mr. Blackwell's letter of the 27th ult. Also

the maximum force of quarrymen, stone-cutters, masons, and foremen over same, for one
 4620 day in each month from October 1870 to February 1871, inclusive.

Yours truly,

(Signed)

CHARLES ODELL.

(266)

DALHOUSIE, 9th March, 1871.

P. A. PETERSON, Esq.,

Division N :

My DEAR SIR,—Herewith I return tracing of west abutment of the Nepissiguit Bridge, which is of no use, as it is not in accordance with the Chief Engineer's instructions (copy sent to you by Mr. Blackwell), nor will it answer the purpose intended, which is to shew the proportion of masonry executed to the 31st December, 1870, by simply making a drawing
 4630 of the whole structure (or separate part of structure as abutment or pier) and coloring the part built, and no more. But, in the tracing herewith returned, you have colored right up to the top, showing even the coping as finished.

Herewith I send you a tracing (on paper), shewing the front elevation and longitudinal section, stepped so as to bring the abutment to the size decided on by the Chief Engineer, at a point a little below the surface of the ground. I don't know yet that the work will be carried out in this way, but it will do for present purposes. You will, therefore, complete your drawings according to this, and color it according to Chief Engineer's instructions, and send on here as soon as possible. I also want to send tracings of progress profile on large scale, showing work done up to 31st December, 1870, as soon as possible, finished according
 4640 to general instructions, No. 2, Section 12.

Yours truly,

(Signed)

MARCUS SMITH.

INTERCOLONIAL RAILWAY,

(267)

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

BATHURST, March 10th, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

My DEAR SIR,—

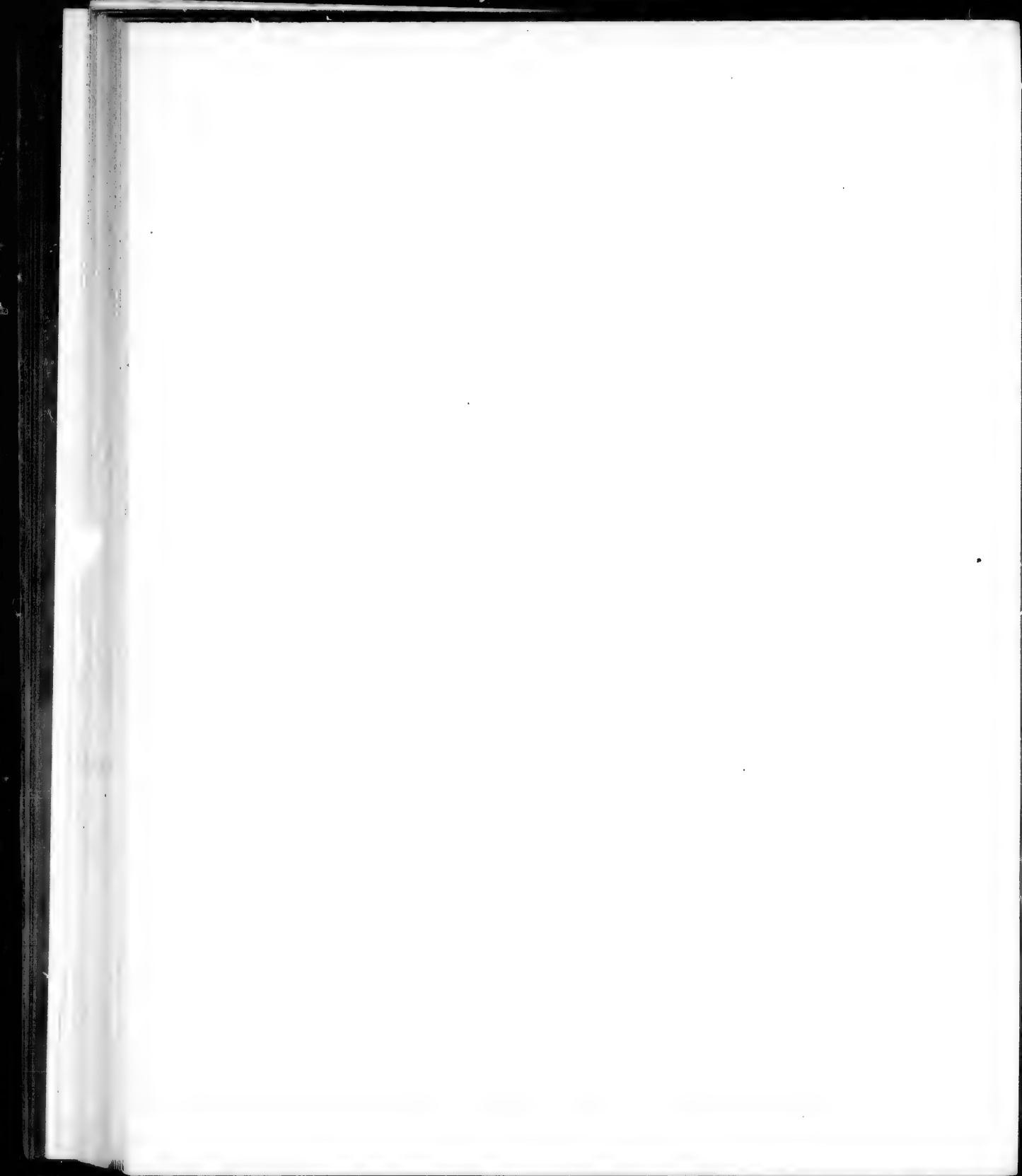
4650

* * * * *

Sutherland is getting some stone up from Bass River; he has delivered about 80 yards at station 242, he says he has offered \$3.50 per day for teams and been refused.

Yours very truly,

P. A. PETERSON.



(268)

DALHOUSIE, 10th March, 1871.

P. A. PETERSON, Esq.,

Division N :

MY DEAR SIR,—Referring to your letter of the 4th inst, I have to repeat that for all structures built according to the general drawings, those drawings are quite sufficient to cut the stone by, and until the foundations are excavated and the exact depth ascertained we
4660 can not make any drawing that will give the contractors any more information than they can get from the general drawing.

It is generally stated that in the schedule of works, the depth that the foundations are assumed to be below formation level, but I perceive that this information has been omitted in the schedule of your division, it will therefore be better to make drawings at once of these two bridges, (Middle and Little River.) *Be careful not to forget the corrections in dimensions of piers, &c.,* as sent to you by Mr. Blackwell. Don't show any courses except the footing courses and instead of three courses of 12 inches show two of 18 inches with 9 inch steps, ascertain the foundations (depth) as near as you can, and if in rock show stepping
4670 (approximately) if required, then make your drawing to the proper height, but not to bind yourself to height ; cut your drawing as shewn on the general plan thus :

(Sketch.)

Just a little above the footings, send plans here before giving a copy to contractor.

Yours truly,

(Signed)

M. SMITH.

(269)

DALHOUSIE, 11th March, 1871.

C. S. ROSS, Esq.,

Secretary :

SIR,—The farm crossing on Senator Ferguson's farm (Section 15, station 325 x 20)
4680 referred to in the chairman's letter of the 22nd ult. is one of those cases where a farm crossing and a stream coming together under a high embankment, it is sometimes found the most economical plan, especially when the stream is large, to pass them both through one structure under the embankment sometimes where the stream is small, it is better to pass the water through a culvert, and divert the road to a level crossing.

For the crossing in question, it was decided (from all the data then in possession of this office) to make an arch culvert large enough to pass both road and stream under the embankment which at this place is fully 30 feet high. It is thus shown on the schedule of works under which the contract was made, and my letter to Mr. Ferguson, of the 4th of January, 1870, was an answer to a letter from him, dated the day previous (herewith enclosed)
4690 and simply stated what kind of structure was then proposed. But when the Commissioners made their tour of inspection last autumn, it appeared to them that some of these structures were too costly for the purpose they had to serve, and I was requested to make a careful personal examination of them and endeavor to modify the plans. I have done so and while I found in some cases the plans could not be improved, in Ferguson's crossing and two others



in my district, I found that by making a culvert for the stream and deviating the road to a level crossing, a very considerable saving in the cost of the works could be effected, especially in Mr. Ferguson's case, I found that the boundary of his farm extended farther westward than I understood when the plans were made, the land survey not being made till afterwards. I think the land valuers were informed of the proposed change of plan before they valued

4700 Mr. Ferguson's land, but I am not aware whether they gave him any extra compensation in consequence of such change of plan, but he certainly will be entitled to it as the old road ran up the centre of the valley, affording the easiest means of communication with all parts of the farm, while by the deviation to a level crossing, connecting the severed parts of the farm, the road will be longer and there will be a considerable ascent and descent to overcome, so that every load of produce will cost more to haul than it did before, not much per trip but considerable in the aggregate for a year, and Mr. Ferguson will not be slow in claiming the utmost compensation for the same.

This brings up the whole question of level crossings, how they are to be dealt with, in cases where the schedule has been departed from, so as to reduce the cost of works, but to

4710 increase the compensation due to the owner of the land. In some cases the contractors have taken a voluntary course. For instance, where a farm has been severed by the railway, and the owner had a right to a direct communication between the severed parts, by a level crossing or bridge, he has sold that right to the contractor for a money consideration of less value than it would have cost the contractor to make the crossing—either parting with one of the severed parts or finding access to it by some roundabout way. I have not objected to this, but have informed the contractor he must get a deed of the crossing he has bought out, and have it transferred to the Commissioners, so as to prevent the successors of the present land owners having any claim on the Government for a crossing hereafter.

In the case of Ferguson's (and similar crossings) there will be, by the change of plan,

4720 a saving of several thousand dollars in the cost of the works, but on the other hand additional compensation will be due to the land owners; and if the contractor is to have the benefit of the one, it seems but fair that he should be charged with the other. The contractor for sections 8 and 6 seems to recognize that obligation, for he is in treaty with the land owners in two cases that occur on his contract.

But whatever may be the contractor's obligation to pay the extra compensation to the land owners, it seems to me very doubtful whether he is the proper party to treat directly with them, for if they fail to agree on terms, I don't know if the contractor is in a position to force a settlement, and the land owners especially. Mr. Ferguson may refuse to recognize the contractor or to deal with any one but the Commissioners, or the land valuers appointed

4730 by them. I shall be glad to have definite instructions on these matters.

Your obedient servant,

(Signed),

MARCUS SMITH,

District Engineer.



(270)

OTTAWA, 11th March, 1871.

AQUILA WALSH, Esq., M.P.,

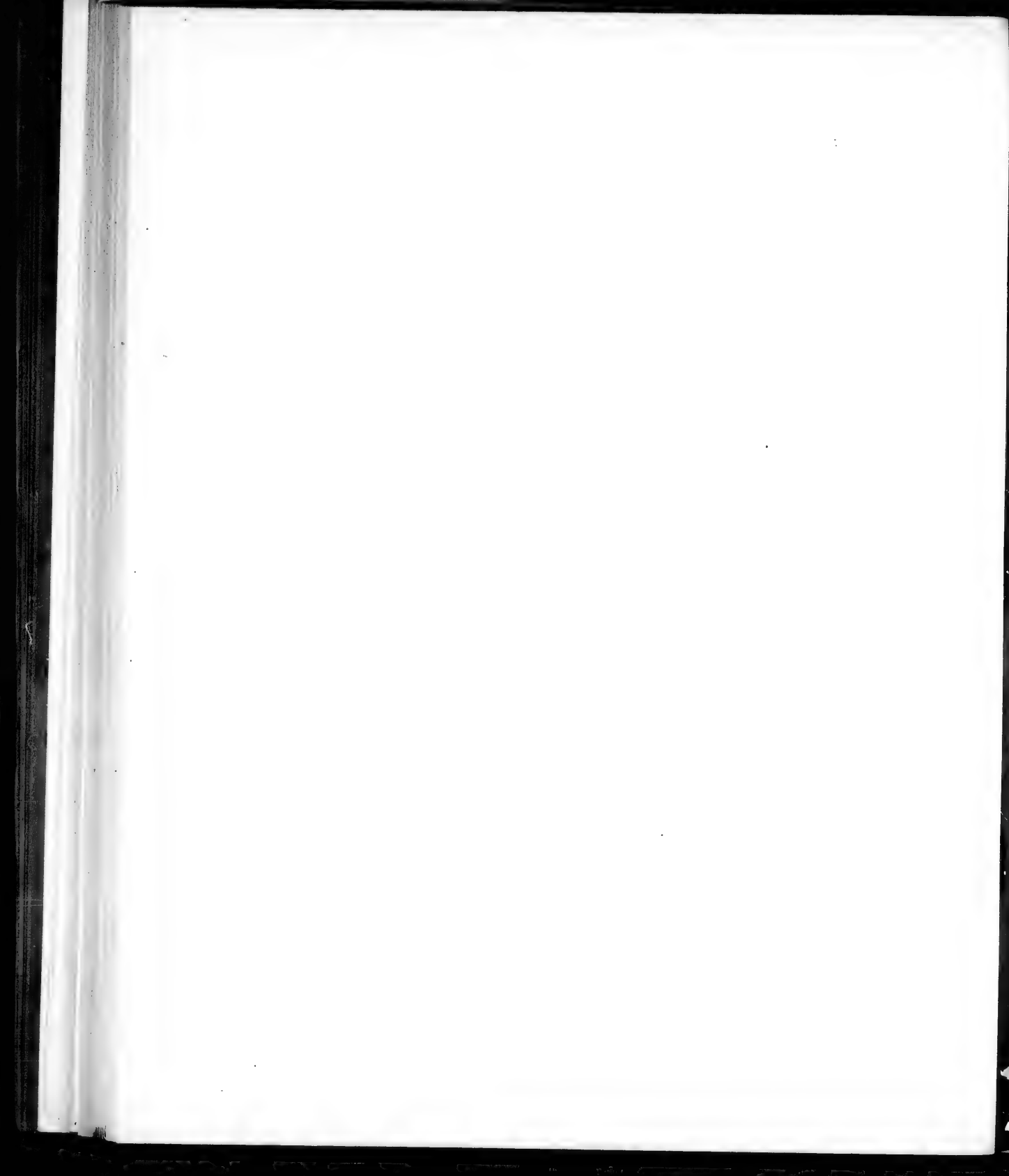
Chairman of the

Intercolonial Railway Commission.

DEAR SIR,—In compliance with your memorandum of instructions, dated the 11th January last, I have visited the works of construction on contracts Nos. 17, 18, 19, 3, 6, 9 and 15 of the Intercolonial Railway, with a view of ascertaining by personal inspection and enquiry the progress made with the works up to the close of the year 1870, the present position of the works, the efforts being made to carry them through to completion, the programme laid down for future operations, together with the preparations being made with a view of carrying the programme into effect, &c. Having completed the investigation, I now beg to report my opinion about the works. From Newcastle, I telegraphed the District Engineer, asking him to meet me at Bathurst, which he did, and he and the contractors accompanied him over the works, thus giving each in the presence of the other an opportunity of explaining his views in relation to the works, all of which I have embodied in these remarks, as my opinion of the works is in a measure based upon information obtained from this source.

With respect to the statement that at the close of the past year the work on these sections had not progressed satisfactorily, or at such a rate that the line would not likely be completed without very great delay, appears to be an admitted fact by the contractors, the reason assigned by them for so small a per centage of the work having been executed to that date are, that the contracts were not signed until some time after the opening of the working season; as a consequence, much valuable time was necessarily absorbed in laying in supplies, plant, &c., and making other necessary arrangements; that though they have diligently prospected for quarries, they have experienced great difficulty in procuring suitable building material, having at the opening of the new year been only partially successful. They also add that inasmuch as the last two months of the year were rough and severe, with a considerable fall of snow, it became necessary to curtail the force employed upon the work of grading. They further state great difficulty was experienced in securing good mechanical labour, such as stone-cutters and masons. In addition to this, the contractors of sections 3, 6, 9 and 15, set up a plea of having been seriously delayed with the masonry and works connected therewith, owing to having been unable to get the work set out when applied for, and in several instances not having been furnished with plans of structures when called for and needed; also after the masonry in Dickey's arch culvert was fairly commenced, all the stone on the ground was condemned, and after a lapse of some days accepted; that the cement was rejected, but subsequently the same lot was approved, this operation having been several times repeated. They also declare the masonry in the Nipissiguit Bridge Abutment was ordered to be made similar on the inside of the wall to that on the face, thus using up stone which were prepared for the face of the work. They also express a conviction that the engineers have largely underestimated the amount of work done, not that they desire to reflect on the staff, or suppose for a moment it is intentional, but in comparing the profile and Bill of Works with the Return, there appears to be a great discrepancy.

To the foregoing the District Engineer replies that, without doubt, the contractors of Sections 3, 6, 9 and 15 have expended a considerable sum of money in exploring for building



- stone. In explaining the cause of the delay in laying out the culvert at the Louison River, he says, solely in the interest of the contractors, he employed men to put down a series of borings
- 4780 across the river, with a view of placing the structure on a good, solid, sound foundation, and by so doing, saving the contractor as much work as possible. In the matter of the Nepissiguit Bridge abutment, he admits the engineer in charge received a letter on the 22nd July last asking to have it staked out, and that no attention was paid to it; also that the request was again repeated by letter on the 21st September, immediately upon receipt of which he had the Abutment laid out. The reasons he gives for not having attended to it earlier are: firstly, that there was no stone or other material upon the ground; secondly, that the letters should have been addressed to him instead of to the Engineer in charge. With respect to the charge of having failed to furnish plans when called for and needed, he explains each case mentioned to me by the contractors as follows: the Engineer in charge of Section 8 received a letter
- 4790 from the contractors on the 21st July, asking for the plan of the Mill Stream Bridge. Before it could be prepared it was necessary to have the foundation proved, so that, if possible, the bridge might be placed in such a position as to avoid the necessity of an artificial foundation, he therefore set some of the members of his staff to work to bore the river bottom, the plan of which was only completed on the 22nd ultimo; he immediately forwarded it to Ottawa, for the Chief Engineer to determine upon a plan; so soon as it is returned, a tracing will be furnished the contractors. On the 4th of August the Engineer in charge of Section No. 15 received a letter from the contractors, asking for the plan of the Little River Bridge. This, the District Engineer states, he has no recollection of having heard of before; but even had he, he says, as there was little or no material delivered, he should have taken no notice of it.
- 4800 Of the statement made by the contractors, that a verbal demand had been several times made for the plan of the Louison River Culvert, he states that until now he thought they had the general plan, which would have been all that was necessary; that he could not be expected to know they had it not, unless they so informed him. With regard to the contractor's statement, that all the stone delivered at Dickey's Arch Culvert was condemned, and a short time after accepted, he pronounces as utterly false, a few useless stones only having been objected to from this cause. He positively asserts no delay occurred, but owing to the inferior quality of the cement it was rejected, and on this account the work of building ceased for a time. He thinks it quite possible, and very probable, some of the same lot was approved and allowed to be put in the work, as he rejects only such as is bad; he indignantly
- 4810 refutes the charge of having compelled the contractors to build the backing of the Nepissiguit Bridge Abutment similar to the facework. He says no such orders were given with his authority; in proof of this, he produces a letter over his signature, dated the 3rd November, authorizing the vertical joints below water level and in the back of the wall to be made one inch. By the office diary it is shown the masonry was commenced on the 31st October, and that only one day's work was done upon the abutment between that date and the date of his letter; that the foreman mason's assertion that he did so personally, and several times repeated the order through the Engineer in charge, is a fabrication; at the same time, he acknowledges the work is built as stated by the foreman mason, but gives as a reason, that there being no other stone upon the ground there was no choice—it was a case of either
- 4820 build with the cut stone or wait until other stone was prepared. As to the monthly measurements, he believes them to be correct, feeling that by the system he has enforced, of having the whole work executed to the end of each month re-measured, an error could scarcely go

undetected. After having viewed the work, and heard the statements on both sides, I am of opinion the contractors are very much behind with the work; that the causes assigned by them for the delay is certainly tinged with reason, but only in part explains the matter. The real question appears to me to be—has proper diligence, sound judgment, practical skill and reasonable energy been practised in prosecuting the work, making necessary arrangements, and preparations in perfecting the organization? I certainly think not. The masonry on all the sections has apparently been most unwarrantably neglected, the contractors of Section 4830 No. 9 having been specially dilatory with their work, having made little or no effort to carry on the masonry, a service which should now be far advanced towards completion, considering the early discovery of the Grand Anse, Bass River and Nepissiguit Quarries, and the facilities at command for transporting stone by water. The work of grading and taking the road out to formation has, so far as I can see and learn, been done in a workmanlike manner, but that, owing to the backward state of the masonry, several large important cuttings on Sections 3, 6, 9 and 15 cannot be proceeded with. The delay which has arisen in supplying plans of structures and staking out the work, though apparently having been done with a good intention, and with a view of assisting the contractors, must in some cases be embarrassing to them, and should, I think, be as far as possible avoided.

- 4840 With respect to the matter of the stone at Dickeys' Arch Culvert having been all or nearly all condemned, I can but think there must have been some misunderstanding, possibly in the District Engineer having given his instructions rather hastily, but with reference to the cement, I can readily comprehend how it happened that of the same consignment some should be rejected, and other accepted, both the Canadian and American Article are so uncertain in quality that it is really impossible to judge how it may turn out until each barrel is opened. Of the matter of the nature of the Engineer's orders with respect to the masonry in the Nepissiguit Bridge Abutment, I am satisfied the foreman mason is sincere, and believes what he states to be correct; he is a man I have known some years, and in whose integrity I have every faith, at the same time we must not lose sight of the fact that the
- 4850 Contractors were in possession of written instructions from the District Engineer upon the subject, which was quite sufficient authority without heeding verbal instructions to the contrary. I therefore can but feel if they have gone to any unnecessary expense with the masonry, it is their own fault. There is another charge preferred by the contractors against the Engineers relative to the Nepissiguit Bridge Abutment, which I had overlooked in my notes, but as it is admitted by the District Engineer to be correct, I shall merely state the case, the abutment foundation was staked out twenty feet square, and so excavated in the rock, but just as the contractors were prepared to commence the masonry, it was changed to twenty-two feet, and they had to then start to take it out to those dimensions, and that subsequently it was again reduced to the original size of the measurements. I would say, I
- 4860 think the system adopted by the District Engineer is very proper, and the most likely way of arriving at a correct result, and therefore have every confidence the monthly estimate gives a true return of the *actual* amount of work done, but in some instances it may not quite agree with the original Bill of Works, which may account for the contractors believing they are not fairly dealt with as regards measurements, the contractors of Sections 3, 6, 9 and 15, only dispute them; however, all express dissatisfaction with the return, believing they should be paid upon their own schedule of prices, in this I think they are certainly wrong, in which, I am convinced, you will all agree after an examination of the accompanying



statement of schedule prices. I will now present a statement of the present position of the works and the efforts being made to carry them through to completion, and a few general 4870 remarks thereon.

The contractors of Sections 8, 6, 9 and 15, have their stores well stocked with supplies, a few shanties are erected for the men, their plant consists of a large quantity of picks, shovels, crowbars, and quarry tools, 10 derricks, 7 large scows, 15 small ditto, 1 tug boat, 1 Chinese pump, 1 twenty horse-power engine, 1 eight horse-power ditto, 6 sets of sheer legs for hoisting stone, 4 stone boats, 1 mile of wooden track, several spans of horses with sleighs, &c., the force employed comprises 881 men, 8 boys and 199 horses. About 60 of the men are cutting stone, and probably $\frac{3}{4}$ of the balance are quarrying, the remainder are working in the cuttings, the horses for the most part are hauling stone, quite as large a force is being employed on the work of grading as could be expected at this season the year, 4880 excepting at the Nepissiguit Cutting where a heavy gang could be employed to advantage; the stone service I am glad to be able to say was at the time of my visit to the works receiving every attention, and the efforts being made to make up for their past shortcomings was most laudable; it was, however, only too transparent that these efforts were only of quite recent date, as the majority of the quarries were only now being opened, it is however so far fortunate the quarries are so favorably situated that rapid delivery may proceed through the summer season. The following is a memorandum of the available quarries now opened, and from which, I am satisfied, all the stone needed for these sections can be procured.

CONTRACT No. 8.

4890	1 Maguasha—Free Stone.	3 Bordeaux—Freestone.
	2 Ramsay—Whin do.	4 Prospect Head—Diorite.

CONTRACT No. 6.

1 Murchies—Blue Lime Stone.	4 S. Charlo—Blue Lime Stone.
2 Nichol—Lime and Whin do.	4 N. " " " "

CONTRACT No. 9.

1 Grand Anse—Free Stone.	3 North End—Blue Lime Stone.
2 Elm Tree—Diorite,	4 Cutting— " " "

CONTRACT No. 15,

4900	1 Rough Waters—Granite.	4 Middle River — Granite
	2 Nepissiguit do	5 Bass River—Free-stone.
	3 Little River do	

The above named quarries, 17 in number, now being operated with good results; if I understand aright, 7 only had been opened at the close of the past year, and that in the month of December, 4 only were being worked. However, it is a pleasure to be able to place on record the fact that the quarrying is progressing briskly, and that the stone produced is likely to prove quite satisfactory. The transportation of the stone to the works was not being pushed as I would like to have seen it, but the contractors expressed a readiness and willingness to largely increase the force in this service if I considered it necessary, which I certainly did, and so expressed myself. I therefore hope ere this, all cause of complaint on this head is removed.



4910 The programme laid down by these contractors is that they shall set to work vigorously with the masonry, keep a large force of men in the quarries, employ all the teams available for stone hauling, keep their scows constantly employed transporting stone, build a number of derricks, work several of the heavy cuttings with earth waggons, employing, if found to be expedient, a steam excavator; in fact use every available means to carry on the works satisfactorily, with a view of carrying the programme into effect. They tell me they are manufacturing a number of earth waggons, preparing to put up additional shanties, building two scows, arranging for the importation of a number of masons and stone cutters, have ordered eight hundred barrels of English Portland cement; they further state they contemplate purchasing three 8 horse-power engines and several pumps.

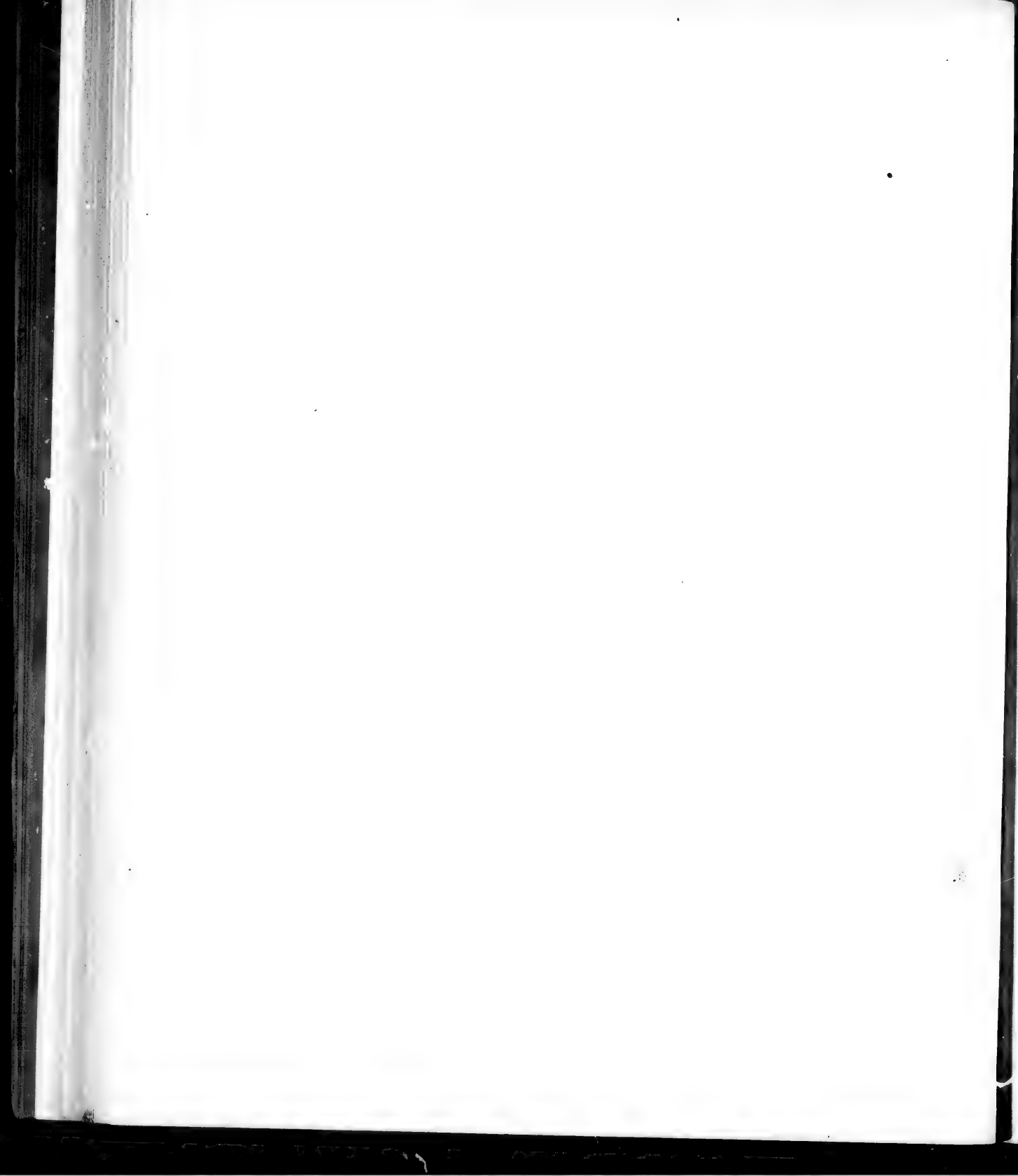
4920 In expressing my opinion with respect to the capacity of the contractors in respect of experience and knowledge to carry on such works, it must be understood it is based upon the above information; and as to the economy which they are exercising in carrying on their works, my opinion is formed from what I witnessed in passing over the district and certain certified statements hereto attached.

The work in the quarries is going on briskly, and the preparations said to be making for carrying on the works in the spring are very favorable, and if the programme is carried out in good faith, considerable work will no doubt be done next summer. The contractors appear to be willing to do what they can, but I fear unless they employ a thoroughly experienced agent to manage the details for them, and take general charge, they will plunge themselves
4930 into difficulty. The work in the quarries, it is only too transparent, is being carried on at an extravagant cost, many men who are cutting stone evidently having never before handled a tool, whereas others whom I know to be good free-stone cutters, are employed upon Granite, and *vice versa*; besides this there are other irregularities, all tending to enhance the cost of the work. This certainly is not an indication of sound economical management. The certificates of the cost of stone cutting and building masonry upon these sections hereto attached are rather startling documents, and tend to explain in some measure how it is the expenditure is so far in excess of the Engineer's Monthly Certificates. Unless all this is changed, I fear it would be vain to hope for the contracts being carried through satisfactorily. There is no margin in the price to allow for mismanagement; it is only by the most stringent economy
4940 the work could be carried out. The contractors by stating they can complete the work in time, expose their want of knowledge of such works, and I think lay themselves open to the charge of want of experience in such works. I, however, believe them to be thoroughly honest in their intentions, and ready to do all in their power to complete the contracts; but I repeat they need to employ a thoroughly competent, honest man as agent, one who is prepared to devote his whole time and attention to their interest, and conduct the work with economy. It is a large piece of work requiring a man of considerable capacity to manage it.

Trusting I have reported sufficiently full, and in detail,

I am, yours,

COLLINGWOOD SCHREIBER.



4950 (271)

DALHOUSIE, N.B., 13th March, 1871.

C. S. Ross, Esq.,

Secretary :

SIR,—I have again to bring up the question of materials provided by contractors but *not delivered* on the line of railway or otherwise put in possession of the commissioners, though they are certified, and the contractor paid for them accordingly.

Of the materials certified last year for the late contractors of Sections Nos. 3 and 6, and which I was instructed to sell to the present contractors. I am informed that the best portion of the stone provided at local quarries for Section 5, has been sold by the Sheriff under judge's order, at the suit of the sub-contractor, who had not been paid for getting out 4960 the stone. And for the stone quarried and dressed at Miramichi for Section 8 (for account of late contractors) the sub-contractor has only been paid in part, and he claims the stone and has been endeavouring to sell it. Up to the present time, no one has disputed the claim of the commissioners to materials certified for the late contractor Section No. 6.

On Section 15, over \$9,000 is certified for stone quarried and dressed, a very small portion of which is delivered on the line, but is principally scattered on the banks of the Nepissiguit over a space of about three miles in length, also on the banks of the Middle and Little Rivers and at the contractors wharves.

The contractors promised Mr. Schrieber and myself that this stone, as well as that which would be quarried subsequently, would all be delivered on the line or at their wharves 4970 by the first of May. But I feel sure they will fall very far short of their promises, in fact at the rate they have been and are now hauling they will not deliver one fifth, possibly not more than an eighth the quantity promised.

We shall, therefore, have both on this section and some other a large quantity of stone certified and paid for but not delivered on the line. I number and mark the stones as they are cut, and could mark the several piles of uncut stone, but the commissioners should have undisputed possession of the stone certified by some legal process, so that if any of the present contractors should fail to carry out their contract, these materials may not be lost as some have already been and a great deal of time wasted in consequence. I shall be glad to have instructions how to act in the matter.

4980

I am Sir, your ob't servant,

MARCUS SMITH,

District Engineer.

(272)

BELLEDUNE, 13th March, 1871.

MARCUS SMITH, ESQ.

My DEAR SIR,—

* * * * *

It has been next to impossible to keep track of what they *called quarries*, as they have *scratched* and *opened* holes in no less than five different places on the western sub-division of the contract, and after working a few days then abandon them, and as the stone was questionable in



most of them, I did not return the force in any of them as noted in the return sent in, until 4990 they were worked *bona fide* and proved good.

I trust the present return will meet your requirements.

I remain, yours truly,

CHAS. ODELL.

(278)

BATHURST, March 16th, 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—

The quarry at Middle River has not turned out well, and Bertrand thinks of taking his stone-cutters and quarry men away from these to commence at some culvert.

5000 He has stone at 264 and at 356; he is talking of putting his quarry men at work to excavate the foundations. I was at 356 on Monday during the thaw to see what the stream was like. I found the bed of the stream full of snow, thoroughly saturated with water, and some water flowing over the top of the snow, but it was impossible to gauge it or even get near it. I got in nearly up to my waist four times, and was nearly frozen before I got home. I made marks on a tree at the level of the snow and water.

In case Bertrand wishes to commence to cut for this culvert, I shall keep him to the double box as on the profile.

Yours very truly,

P. A. PETERSON.

5010 (274)

DALHOUSIE, 17th March, 1871.

MY DEAR FORREST,—Herewith I send you a sketch of the west abutment of the Nipissiguit Bridge, shewing in red colour the masonry built (the part in section shaded.) This was commenced according to a drawing I made and sent to the Chief Engineer for approval, and as I got no instructions on the matter for several weeks after I had to let the contractor commence work; subsequently you sent me a drawing shewing the abutment only 20 feet wide, while mine shewed 22 feet, and the work built was done according to the latter. The question now is what is to be done, which will have to be decided soon, as they will re-commence building probably about the middle of April. To carry it on according to my plan would give 28½ cubic yards more masonry than on yours; this would be on this abutment 5020 only; on the east abutment the excess would only be 3 or 4 yards, and of course on the piers nothing.

2nd. To step it in as shewn on the sketch A B C D, would possibly hardly be safe for the height of the abutment (about 44) though as to crushing weight, the granite would stand anything.

3rd. To build a piece of wall E to D alongside that already built, would of course have no bond, but it would stand on rock and only be 5' 6" high, so that if made 2 feet thick



would stand well on its own bottom (or hook) and of course would be well tied to the other wall at A D, and then the wall will be carried on the inside from D to C on the blue line in its true position, and the outside might be stepped in A to D as convenient. Hope to hear
5030 about this soon.

Yours truly,

(Signed)

M. SMITH.

(275)

BATHURST, 17th March, 1871.

A. M. SMITH, Esq.,

District Engineer.

MONSIEUR,—Auriez vous la bonté de m'envoyer une copie des plans généraux, tel que vous avez donné à M. Berlinguet, car ceux que j'ai sont incomplets.

En faisant vous obligerez beaucoup.

Votre serviteur,

5040

J. B. BERTRAND.

(276)

DALHOUSIE, 18th March, 1871.

J. B. BERTRAND, Esq.:

SIR,—In reply to your letter of the 17th inst., I have sent to your address by book post, this day, a copy of the General Plans (corrections made in red colour). Special plans of the road bridges at Stations 387 x 55, 495 and 589, are being made and will be sent to the Engineer in charge in a few days, with instructions to send you copies *tout de suite*. These plans will be in lieu of the General Plans No. 23, and are more *à propos pour la situation*, have less timber and less masonry, and the dimensions of the timbers are generally the same as for the general plan, so that if you have ordered any timber it will not be
5050 wasted.

Plans of the Middle and Little River Bridges are being made, and copies will be supplied you as soon as possible.

Your ob't servant,

MARCUS SMITH,

District Engineer.

(277)

DALHOUSIE, N. B., 18th March, 1871.

P. A. PETERSON, Esq.,

Division N:

My DEAR SIR,—In reply to your letter of the 16th inst., you will have to get a written
5060 application from Mr. Bertrand to substitute a bridge for a level crossing at Station 285, and to lower the grade, which you may lower one foot. I fear if it were lowered two feet it would interfere with the drainage at 296. But, if you think it will help Bertrand by lowering it two feet, and he asks it to be done, you may do it. You must, however, understand that, except in a deep ballast pit prepared for a locomotive engine ballast train, any excess left for



ballast must be taken down and left in the sides of the cutting, and the slopes trimmed. If you have not already had a written request from Bertrand to throw the *two* culverts, Stations 471 and 475, into *one*, you must get it at once, and also for all other alterations made for his benefit, and in the form of all requests made by the contractors, there must be an acknowledgment that the alteration would be to their advantage. If Bertrand asks for it, then you
 5070 may alter the line between 260 and 296; substitute a bridge for a level crossing at 285; farm crossing drifted from 315 to 318 and made double; bridge at 324 to be left as it is at present. If Bertrand does not ask for a bridge at 285, thus, let grade and level crossings remain as they are at present.

Yours truly,

M. SMITH.

District Engineer.

P. S. —I see a note of yours in your diary extracts, 25th February, which says that you make no *abstract* of force engaged at Rough Waters Quarries, as the stone is for different sections. Now, I have to repeat that we cannot possibly apportion the stone or the force engaged
 5080 at Rough Waters to any particular section. All you have to do, is to keep the Rough Waters Quarries separate from your own division, but have both the force taken and the stone measured up in *detail*. You might number the quarries and the wharf at Bathurst, and then make out an abstract of the same as if it were *all for one section*. Your inspector of masonry *must take the time every day*, as well as assist in measuring up the stone. Keep the force of your own division in two distinct parts; have masonry and quarries, and all connected with them; the other includes everything else.

(Signed)

M. S.

(278)

BATHURST, March 20th, 1871.

MARCUS SMITH, Esq.,

5090

District Engineer,

Dalhousie:

MY DEAR SIR,—The contractor intends to begin to build masonry at the Nipissiguit Bridge on the 27th inst. The Masonry Inspector considers it too early, and says we are having too hard frost every night to allow masonry to be commenced.

I suppose the contractor will want to use the same cement that he was putting on last autumn. Shall I allow him to commence on the 27th, and to use this cement?

I have laid out the culverts at 264 and 482, which the contractor says he intends commencing this week. I shall require to know about the grade at 264 before I can make a plan of this culvert. I suppose the culverts at 482 will be 2'-6" $\times$ 3'-0", as he arranged last

5100 winter.

Shall I have the *width* of the culvert so increased that the *clear water* way shall in all cases be that marked on the plan? I suppose the best way to accomplish this will be to make the plan the necessary width, and then to add a note that this is to be the *clear water way*, so the contractors will have the option of taking off the rock face projections or of



widening the span between the walls. How are the cut-water stones to be dressed? I see the specification does not say anything about it. What prices shall I allow for square timber for cattle guards; for cedar logs 20' long 8" diameter at small end; and for cedar logs 15' long 8" diameter at small end? Contractor pays 10 cents per foot for the square timber, and 55 cents each for the 20' cedar logs.

5110

Yours very truly,

P. A. PETERSON.

(279)

BATHURST, 21st March, 1871.

MARCUS SMITH, Esq. :

MY DEAR SIR,—I herewith enclose tracings of the different structures actually built on this division up to the end of 1870, in accordance with the extract from the Chief Engineer's letter of February 8rd, sent to me.

I remain,

Yours very truly,

(Signed)

CHAS. ODELL.

5120

(280)

BATHURST, 22nd March, 1871.

MARCUS SMITH, Esq.,

MY DEAR SIR,—I received a letter from the contractors last evening asking me to allow them to take a copy of the estimates for the months of January and February last. Will you please inform me by to-morrow's mail whether I shall do so, and as to whether it will be sufficient to give them a copy of the quantities in the certificate, or am I to give it in detail. I have once or twice given it to Mr. Bertrand as a favor, having first ascertained that Mr. Peterson had done the same with your consent, but at present I am not inclined to do more for them than is absolutely necessary.

I remain,

5130

Yours truly,

(Signed)

CHARLES ODELL.

(281)

OTTAWA, 23rd March, 1871.

SANDFORD FLEMING, Esq.,

Chief Engineer,

Intercolonial Railway.

DEAR SIR,—In accordance with your request, I have made a general inspection of the works of construction on the Intercolonial Railway, and now beg to submit the following brief report :

RESTIGOUCHE DISTRICT.

5140

Contracts—3, 6, 9 and 15.

The work upon these sections is very much behind, especially the masonry, which has been sadly neglected, and will, no doubt, embarrass the contractors in completing their



contracts. However, many new quarries have been opened since the close of the past year which are being worked with spirit, and will, no doubt, produce all the stones needed for these four contracts. What little masonry has been built appears to be well put together, but from data handed me it is shewn to have cost an extravagant price; this I can readily understand from what I witnessed at the quarries. The earth-work generally is said to have been taken out in good shape, but that at several important points it cannot be proceeded with owing to the culverts and bridges in the adjoining ravines not being built. The
 5150 cutting at the Nepissiguit River is not being pushed as it should be, there being only a very small force employed, whereas, a large gang of men could be employed to advantage. I last season's work was to be taken as a criterion of what might be expected in the future, it would be a number of years before the work would be completed, but with proper skilful management, I think the contract works might be finished by the summer of 1873.

I am, yours truly,

(Signed)

COLLINGWOOD SCHRIEBER.

(282)

23rd March, 1871.

SANDFORD FLEMING, Esq.,

Chief Engineer:

5160 MY DEAR SIR,—I have sent by parcel post (registered) this day tracings of drawings, showing the quantity of masonry executed to the end of 1870 on contracts Nos. 6, 9 and 15, in accordance with your instructions and sample drawing of the 3rd Feb. last. The drawings for contract No. 8, I expect to have in a few days, and shall forward tracings without delay. There is no masonry done on contracts Nos. 17, 18 and 19. The profiles for each division are being made in accordance with general instructions No. 2, Sec. 12, and the books according to Secs. 19 and 20. As soon as the profiles are ready, I shall send you tracing (colored) to show the work done up to Dec. 31, 1870, and a copy of each of the books will be forwarded.

5170 Most of these would have been ready before this, but the levels on each division have been re-taken very carefully, as well as most of the cross sections, with a great many additional, and the Engineers are marking up their books from these, being much more reliable than those taken on the location surveys; but I have nearly all the original books of the latter in the safe to fall back upon in case of accident before the others are completed.

Yours most truly,

(Signed)

M. SMITH.

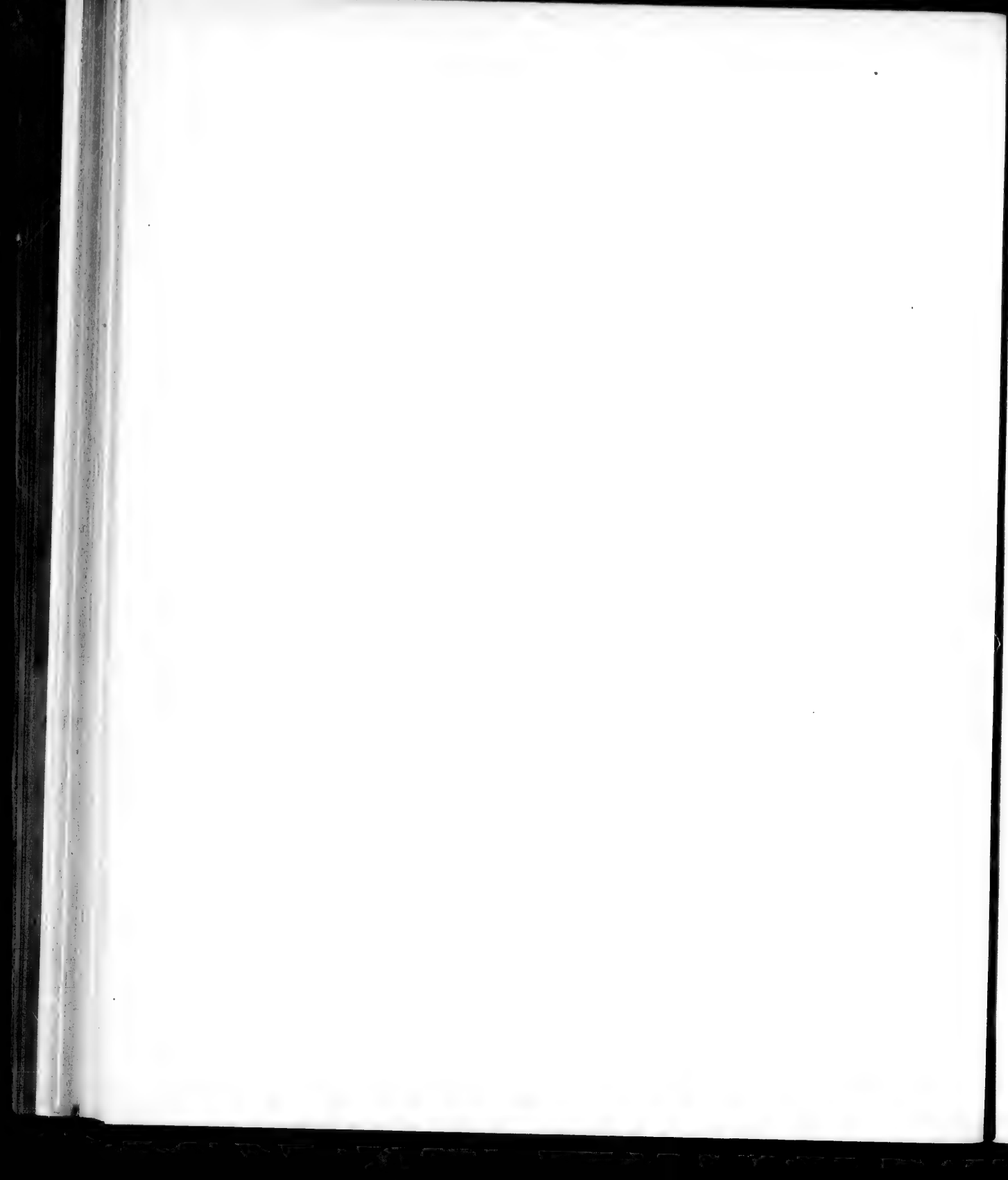
(283)

DALHOUSIE, 23rd March, 1871.

CHARLES ODELL, Esq.,

Division M:

5180 MY DEAR SIR,—I have received your letter of the 21st, with tracings of the structures as actually built on your division, in accordance with instructions of the Chief Engineer's



letter, 3rd Feb. These are very nicely done, and I thank you for the promptitude with which you have got these ready. In future it will be well to make your assistants work up the drawing as each structure is being built and as soon as the structure is completed then let the assistants complete the drawing, make a tracing of the same and send to you. This will be good practice for them, and will prevent the whole of the work being thrown upon you at the last hour.

How are you getting on with your green books (general instruction, No. 2)? I should like to have a copy as soon as possible. All the recent cross-sections since you made the preliminary survey, including those taken for the Belledune Bridge, should be put in; and if, as I suppose you have, taken an entire new set of level for the longitudinal section (or profile), you will, of course, put them in. Also the new grades if Bertrand has consented to them; if not, you must get him to make a written application for these and all other cases where the plan, profile or schedule of work has been departed from. He must make a written requisition for these alterations, *acknowledging* that it will be for his benefit, but, as he believes, not detrimental to the works or the working of the railway.

I should also like to have the profile as soon as possible, with the work done up to the 31st December last, colored according to instructions, as you are short of assistance. As soon as you get your green book completed, send it here, and I will have the copy made for the Chief Engineer's office. Also the profile—as soon as you get *one* sub-division done, send it here, and I shall get it traced.

Yours truly,

(Signed)

M. SMITH.

(284)

DALHOUSIE, 23rd March, 1871.

CHAS. ODELL, Esq.,

Division M:

MY DEAR SIR,—In reply to yours of the 22nd inst., you may give the contractors a copy of the estimate in the form, we send them up to the Chief Engineer; also, if they want any details of quantities, let their clerk come to your office and take a copy from your schedule of details, but don't put your name to it or make yourself in any way responsible for the accuracy of the quantities which from former estimates would appear to have been done during the last month; we only give approximate estimates of *total* done to date.

Yours truly,

(Signed)

MARCUS SMITH.

(285)

DALHOUSIE, 23rd March, 1871.

CHAS. ODELL, Esq.,

Engineer, Division M:

MY DEAR SIR,—In entering your force returns, I wish them to be made in two grand divisions, entirely separate from each other.

- 5220 One division to comprise all those engaged on masonry or anything connected with it such as quarrying, stone-cutting, hauling, lime burning, &c., giving the usual distinctions as foreman, blacksmith, stone-cutters, quarrymen, laborers, horses, &c.

The other division to comprise all other kinds of work classified as usual into foremen, mechanics, laborers, horses, &c. It would be well for those taking the force to enter in their diary what kind of work each gang of the force is engaged on; but in your abstracts for me, make them out only in two grand divisions.

- I see in your diary abstracts you sometimes say, "visited such a quarry," but you say nothing more about it. I wish you would add a few remarks as to how the stone is turning out—good or bad—and if good, say whether the quarry is likely to produce it in large quantities, also whether the quarry is properly opened out, as I find generally they are only scratching the surface and drawing a few good stones out "by the hair of the head," acting on the "penny wise pound foolish system," afraid to go into the matter in the only way that would give fair chance of getting good stone and plenty of it.

Yours truly,

(Signed)

M. SMITH.

(286)

DALHOUSIE, N. B., 23rd March 1871.

P. A. PETERSON, Esq.,

Division N:

- My DEAR SIR.—In reply to your letter of the 20th inst., I have to state that the 27th March is too early to commence first-class masonry in this District unless it were absolutely necessary to force the work and take every means to protect it against the frost *at any cost*. The contractors are certainly very much behind with their masonry and it wants to be forced, but surely there is plenty of other work for them to go on with (culverts I mean), till the proper season, say 1st May. The cement they used last year is utterly unfit for first class masonry, and the contractors distinctly promised me that they would use no more of it but get out Portland cement and they and their sureties repeated their promise to Mr. Schreiber and stated that they had arranged with Mr. Moffatt for a cargo of it (Portland cement) by the first trip of the "Anna Bella," expected here by 1st May next. However when they get the snow and water out from the abutment commenced, you will examine the cement in the masonry along with the inspector of masonry, and report to me—if it is unfit then according to clause 36 of the specification, they cannot proceed till they provide proper materials.
- 5250

As the culverts (box) built with the granite, might do almost dry, you may allow them to use the cement they have on hand in these culverts, provided it has not got wet and set in the casks.

Unless the contractor has asked for a change, lay out culvert at 282 according to present grade; if he asks for a change afterwards, we can flatten out the slope to correspond to length of culvert; culvert at 482 lay out two feet wide and 2 courses high, not to make less than 2' 6"—lay out these culverts according to schedule widths with a note added that



5260 contractor may make them wider (up to 6 inches) to compensate for rough face, otherwise face to be taken off. Cut waters are usually dressed all over, but chisel draught 2 inches wide and the other roughly dressed not to project more than an inch anywhere, will do. Allow prices for timber what you say it costs contractor to lay down.

Yours most truly,

(Signed)

M. SMITH.

P. S.—I find from samples it was Blackwell's fault about the force returns. I want it in *two* grand divisions, separated—one for masonry and all that pertains to it. The other to include all other work, and for my use, two separate abstracts made accordingly.

(Signed)

M. S.

5270 (287)

DALHOUSIE, 28rd March, 1871.

SANDFORD FLEMING, Esq.,

Chief Engineer :

MY DEAR SIR,—On the 17th inst. I sent Mr. Forrest a tracing of the west abutment of the Nepissiguit River as built, which is 2 feet wider than shewn on the plans I received from you subsequently. The question now is what to do with it ? To complete it as begun would require 28 yards of masonry more than it would according to your plans, but would of course be still a very great reduction on the schedule quantity which was got out for a timber bridge. On the east abutment there would only be about 4 yards in excess of your plans and of course none in the piers.

5280 To step it as shewn on the sketch would probably make the wall too weak, and to build a wall against the side of the other would have no bond up to the height it now is, (5' x 6") the rock would have to be levelled for the foundation, and the additional quantity would be 12 to 14 yards, and I have no doubt the contractor would rather complete the abutment as commenced than do this

No doubt the simplest way would be to complete it as begun, as the excess of masonry is so very small, and the height of the abutment so great that 2 feet extra width would do it no harm.

The contractor wants to re-commence this abutment on the 27th inst., which is too soon for first-class masonry in this District, besides they have no proper cement, they say 5290 they have ordered a cargo of Portland cement from England, which is due 1st May ; they have plenty of other masonry to go on with till that date, still the plan should be settled as soon as possible.

Yours most truly,

(Signed)

M. SMITH.

March 27th, 1871.

(288)

(By Telegraph from Ottawa.)

To M. SMITH.

Should there be a freshet this spring, or at any time during the summer, I hope you will give instructions to have the streams observed for highest flood water again.

5300

(Signed)

S. FLEMING.



(289)

28th March, 1871.

P. A. PETERSON, Esq.,

Division N :

MY DEAR SIR,—Herewith I send you tracings of plans for over bridges at stations 337 + 53 and 583. You will furnish contractors with a copy of each as soon as possible. The plan for over bridge at station 470 will be ready in a few days.

You will observe that the plan for bridge at station 583 is drawn for 30 feet base, (cutting). I have a plan for 22 feet base, but on reference to the schedule I find the cutting can be taken through at 30 feet base with a very small quantity of earth beyond the maximum haul, if the contractor refuses to take it out 30 feet wide throughout the cut we can compel him at least to take it the length of the maximum haul, you must stop the borrowing at the end of the cut beyond a base at 30 feet, and in every case the cutting must be taken through before borrowing is resorted to.

The contractors should get the materials prepared for the bridges so that they can be put up quickly, as soon as the cuttings are advanced beyond the roads.

Drawings of iron work will be sent next week, or as soon as they can be got ready.

Yours truly,

(Signed)

M. SMITH.

(290)

INTERCOLONIAL RAILWAY

COMMISSIONERS OFFICE,

OTTAWA, 29th March, 1871.

5320

M. SMITH, Esq.,

Dalhousie :

SIR,—Referring to your letters of 11th and 13th inst., the Commissioners gave all consideration to the matters referred to, and recognized the importance of the same. Regarding the question of level crossings, the Commissioners, I think, concur generally in the views you express; and as to Mr. Ferguson's case, I am to write to the valutors, asking whether they understood it was to be by culvert or level crossing; and if by the latter, whether they had made any allowance for the detriment arising therefrom. When their reply is to hand I will again address you on the subject. As yet the Commissioners have not established

5330 a rule about these level crossings.

With regard to estimates upon materials, the Commissioners are unanimously of opinion that there is no safety except in insisting that the materials shall be *upon the line*; and they think you should inform engineers and contractors that this rule must be generally followed. The Commissioners would not like to say definitely that no deviation from this rule shall be permitted; but they would urge its observance in almost every case. They



hope you will see that any materials which have been estimated, though not on the line, are brought to it with the least practicable delay.

* * * * *

I am, Sir,

5340

Your most obedient servant,

(Signed)

C. S. ROSS,

Secretary.

(291)

INTERCOLONIAL RAILWAY,

ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,

BATHURST, March 29, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—

* * * * *

5350 I have seen Bertrand with reference to the contents of your letters of 18th and 23rd inst. He has not decided yet what he will do with reference to the bridge at 284. I have made a statement of the quantities for each method of crossing. The bridge required 15,000 feet B. M. more timber than the cattle guards, and the difference between the masonry in the bridge and what is saved on the two culverts from lowering the grade 2' is 31 yards.

With the grade lowered 2' the excavation between 248.95 and 297.40 amounts to 56.129 yards, and the embankments to 47.598, leaving for ballast 8,521 yards; but under the present arrangement of grades the embankment amounts to 52.642 yards, so the handling of 5,045 is saved if the ballast in these cuts may be left on the sides in a natural state; but if the slopes must be dressed, then instead of hauling out 5,045 the contractor will have to take down 8,531, and the saving if any would be slight. Putting the timber in bridge at \$16 per 1,000 in the work, and the masonry at \$12 per yard, against the 5,045 yards at 16 cents, and the saving by building the bridge is \$205. I consider a level crossing at this point would be highly dangerous and would have a bridge if it cost a great deal more.

Yours very truly,

(Signed)

P. A. PETERSON.

(292)

SIR,—

* * * * *

OTTAWA, 29th March, 1871.

Extract.

5370

"With regard to estimates upon materials, the Commissioners are unanimously of opinion that there is no safety except in insisting that the materials shall be *upon the line*; and they think you should inform Engineers and contractors that this rule must be generally followed. The Commissioners would not like to say definitely that no deviation from this

rule shall be permitted, but they would urge its observance in almost every case. They hope you will see that any materials which have been estimated, though not on the line, are brought to it with the least practicable delay.

I am, Sir,

Your most obedient servant,

(Signed)

C. S. ROSS,

80th March, 1871.

5380 (293)

(By Telegraph from Ottawa.)

To M. SMITH :

Carry up abutment Nipissiguit Bridge as commenced to level horizontal cross wall, then contract if deemed advisable. See letter.

(Signed),

S. FLEMING.

DIVISION M, INTERCOLONIAL RAILWAY, ENGINEER'S OFFICE,
RESTIGOUCHE DISTRICT,

(294)

BATHURST, 8rd April, 1871.

MARCUS SMITH, Esq. :

5390 MY DEAR SIR,—I herewith enclose the progress certificates of work done up to end of March 1871.

I have gone over the stone carefully and classified it according as I deemed it suitable for the work.

The timber delivered for farm crossings I have rated at prices obtained from those having the contract for the same.

I remain, yours very truly,

(Signed)

CHARLES ODELL.

(295)

8rd April, 1871.

P. A. PETERSON, Esq..

Division N :

5400 MY DEAR SIR,—I have just received a telegram from you saying that Bertrand has given you notice that he intends to commence first class masonry to-morrow, but you don't say where, or why you telegraphed me the fact: is there anything wrong?

I gave you full instructions in regard to this in my letter of the 28rd March, an extract of as much of this letter as relates to masonry you should have sent to Mr. Bertrand; either you have not done this, or Mr. Bertrand has Portland Cement in quantity to go on with. If he has not done this then he cannot go on for in my opinion none of the cement that the contractor exhibited to us last year was fit for 1st class masonry, but I have no

report from you or the Inspector as to the state of the cement put in the west abutment of the Nipissiguit Bridge as requested in my letter of the 23rd March. Once for all I must
 5410 repeat that masonry will not be allowed to go on until a quantity of proper cement has been provided (according to clauses 36 and 37 of the specification), we cannot keep an Inspector to test every barrel of cement, the best of which even is not fit for first class masonry.

Yours truly,

(Signed)

M. SMITH.

P.S.—The abutment at Nepissiguit River will be continued according to plan as commenced, at least up to the first horizontal cross wall, we can then contract, if advisable thus :

Sketch.

For which a drawing will be sent.
 5420

(Signed)

M. S.

(296)

BATHURST, April 3rd, 1871.

P. A. PETERSON, Esq.

SIR,—We beg respectfully to inform you that we intend to work at the masonry at Nepissiguit Bridge when the weather is favorable, and also at the culvert at 264. We will probably commence to-morrow, and we wish also to have the foundation of culvert laid out at Station 252.

We remain, yours very truly,

(Signed)

J. BERTRAND & CO.

(297)

BATHURST, April 3rd, 1871.

5430 Messrs. J. B. BERTRAND & Co.,

Contractors, District N,

Bathurst.

SIRS,—Yours of this morning informing me that you will probably commence masonry on the Nipissiguit Bridge to-morrow is received.

With reference to our conversation of this morning, the Inspector of masonry informs me that he told your foreman not to commence masonry till the weather got milder, and to leave word at the office before commencing, but that he never said he must not commence for any specified time. Your foreman said he would not lay any till a week from Monday coming.

5440 When your masonry is stripped, I will examine it, and I would be glad if you would send me word when the snow and water has been removed.

The culvert at 252 will be laid out to-day, and I will send you to-morrow the plan for culvert at 264, shortened six feet, so as to suit grade which has been lowered at your request between stations 260 and 296.

I am, sir, your ob't serv't,

P. A. PETERSON.

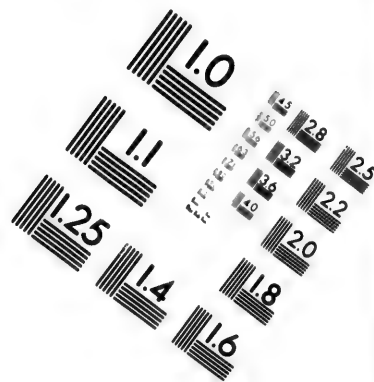
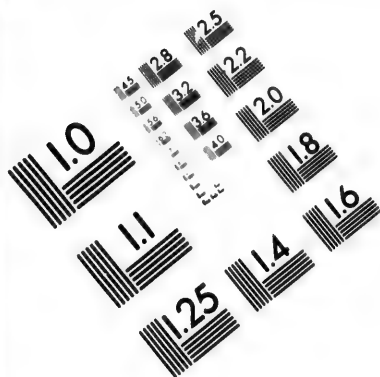
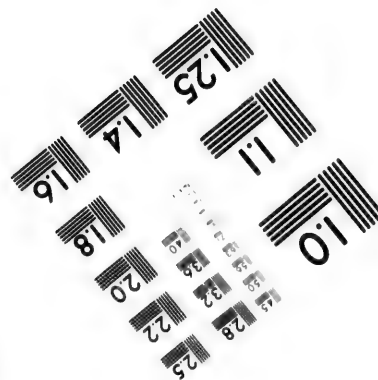
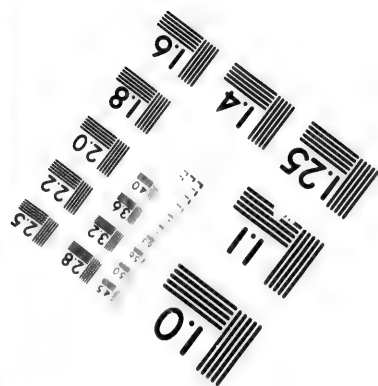
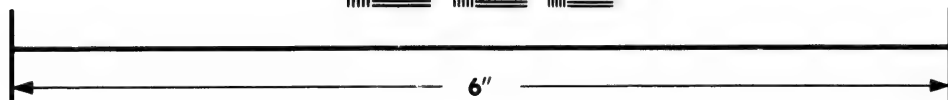
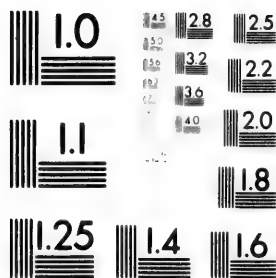


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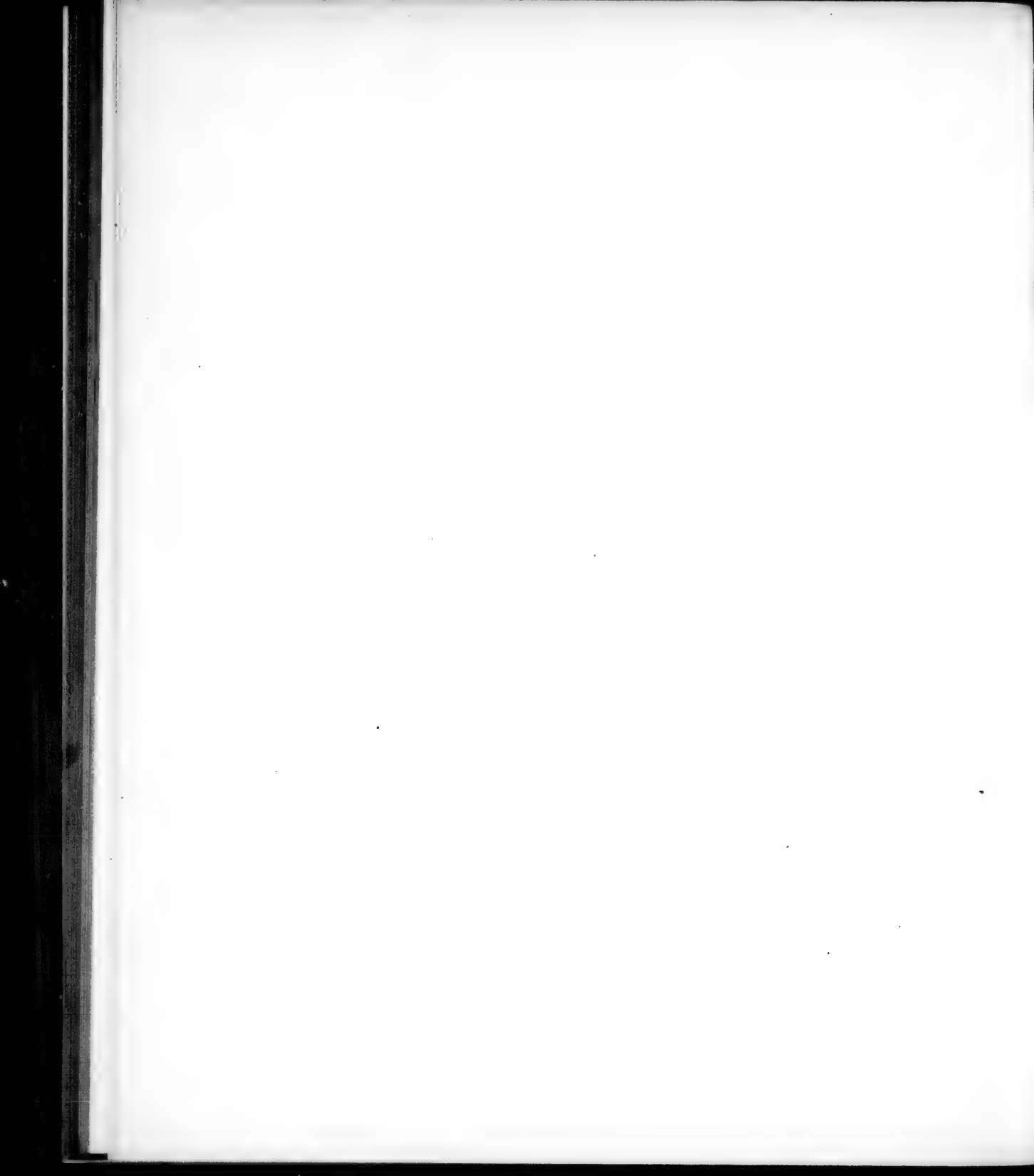


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(298)

BATHURST, 8rd April, 1871.

MARCUS SMITH, Esq.,

District Engineer,

5450

Dalhousie :

I repeated to Mr. Bertrand the substance of your letter of the 23rd ult., with reference to commencing first-class masonry. He replied at the time that he would commence when he thought the weather was favorable. He said the Orleans cement was good and that he would use it, but that he had ordered 1200 barrels Portland to come out by the first ships.

I received a letter, of which the enclosed is a copy, from Bertrand this morning. I also enclose copy of my reply.

I cannot see why he is in such a hurry to commence unless it be that he wants us to positively forbid him, so that he may have that for a ground of complaint. He intends to work his derrick by steam, and his engine, &c., will not be ready for a week or so, and when 5460 I mentioned this to him this morning, he said he would commence by hand. The masonry laid is not yet stripped, when it is I will examine it, and report in what state the cement is. Bertrand came to me to know if I had given positive orders not to commence masonry for a week. He said the Inspector had given such orders to his foreman; by the Inspector's report you will see that he told foreman not to lay till weather got milder, that foreman said he would not lay any for a week.

The weather to-day is fine and warm, and I think masonry might be laid, but I have no doubt there will be many days between this and 1st May, when the frost will be too severe.

Yours very truly,

5470

(Signed),

P. ALEX. PETERSON.

(299)

BATHURST, April 8rd, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—Contractor informed me this morning that he would make bridge at 285 instead of level crossing, and that he would write and ask me to make the change, so I shall have the culvert at 264 built for a *formation level* of 186 instead of 188. Contractor says he will not take off the rock face of the stone for culverts, neither will he make them 6" wider to allow for this.

5480

I shall commence to draw the abutment at Nipissiguit Bridge in by 8" steps, as shown on tracing sent me on 10th March.

I should like you to have seen that masonry, about which there was so much dispute, before it was covered up. Thirteen of Bertrand's best stone-cutters have left him to go to

Newcastle, to dress stone for Brown. He will soon have only Frenchmen and apprentices left.

The ice is still on the river, but it is too weak to haul stone upon.

Yours very truly,

(Signed)

P. A. PETERSON.

(800)

BATHURST, April 4th, 1871.

5490 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—Yours of the 8rd inst. was received this morning. My letter of yesterday will explain my telegram. I read portions of your letter of the 28rd ult. to Bertrand as soon as I received it. You will see that if he does not positively forbid the use of the Orleans cement, all was to depend on the examination of the masonry laid last year, and this was not uncovered till last evening. The foreman sent me word this morning that this was done, so I went out at once with the Inspector to examine it. We found that a little of the cement at the top of the joints came out easily in places with the point of the
5500 trowel. I had the gravel, which was flush with the top of the masonry, removed, and found the cement in good order; so hard that it was difficult to chip it off with the point of a heavy trowel. The Inspector considered it good, and said it was as hard as the sandstone from Grande Anse, and that he did not think we would be justified in stopping the masonry from being laid on account of the concrete, and more particularly as they were putting on a four-inch lipping of Portland cement. The foreman said he had ten or twelve barrels of *Portland*, but did not know if there was any more in store. The weather is very mild and the snow is nearly gone.

Do you intend to have the entire abutment laid in cement? Clause 37, specification, would allow common level now, save for lipping, &c., as we are more than two feet above
5510 ordinary level of water.

The cement proving good and the weather being mild, and in absence of positive instructions from you not to allow masonry to be built so early in the season, I have allowed the masonry to go on.

The foreman at the bridge informed me that he had received instructions from Mr. Bertrand to take no orders unless given in writing.

Yours very truly,

(Signed)

P. A. PETERSON.

(801)

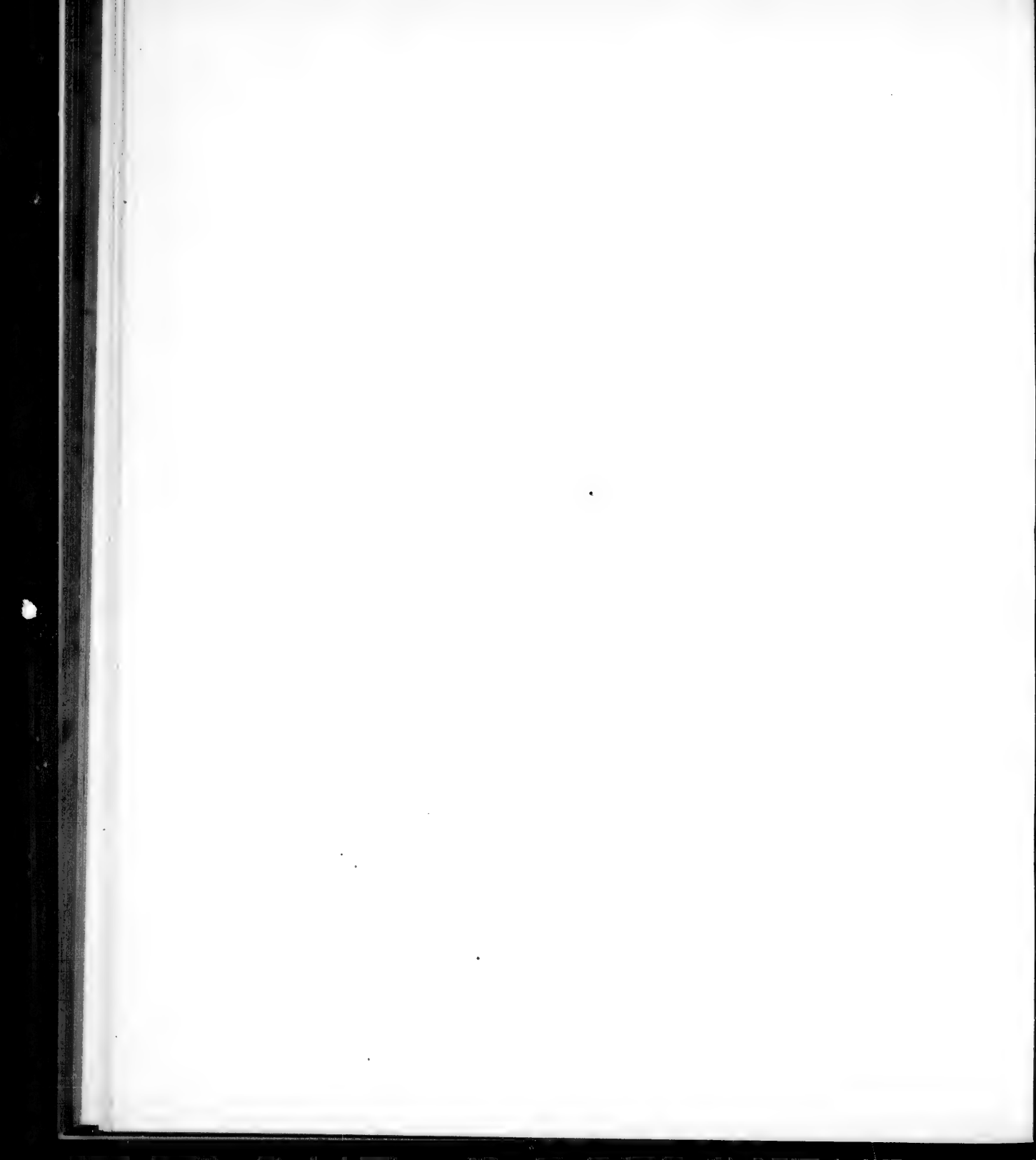
DALHOUSIE, 4th April, 1871.

P. A. PETERSON, Esq.,

5520

Division N:

MY DEAR SIR,—I have received your two letters of the 8rd inst., with copy of a letter from Messrs. Bertrand & Co., and your reply to the same.



You must not forbid them commencing masonry at any time they like, but our Inspector must see that the work is properly protected from the frost, and also that proper cement is used, and that they have it in quantity—that is to say they must have a great number of barrels—a little from each barrel tested at once, with the initials of our Inspector, written by himself, on each barrel, and each barrel numbered, the samples from each for testing numbered to correspond, and no work to be done with this cement till the samples have hardened. But I think, when you uncover the masonry done last year, you will find the cement not hard at all, which will condemn the whole thing. There is plenty of other work for him to go on with till the Portland Cement arrives, if even it has really been ordered.

I wrote yesterday that the west abutment was to be carried on according to the original plan up to the first cross wall—the one exception is that the 5 feet wall in front must be only 4 feet, so commence with a step back from the inside of 1 foot. All box culverts must have a *clear* water-way of the width shown on “General Plans” or special plans. I shall be down on Wednesday or Thursday next.

Yours truly,

(Signed)

M. SMITH.

5540 (802)

OTTAWA, 5th April, 1871.

C. SCHREIBER, Esq.,

Moncton :

SIR,—By instructions from the Commissioners, I beg to hand you herein copies of:

1. Letter of Mr. Smith, 11th March, about Mr. Ferguson's crossing on his farm near Bathurst.

2. Letter of Mr. Ferguson to Mr. Smith, 8rd January, 1869, on same subject.

3. Letter of Mr. Covernton, valuator, 1st April, in reply to the question whether the valuator had proceeded upon the basis of the 1st proposal of culvert or upon the arrangement adopted afterwards.

5550 The Commissioners desire that you should, when an opportunity offers (your being at Bathurst), visit the locality and report your opinion of the money value of the detriment to Mr. Ferguson's farm caused by the recent change of arrangement; or, if you can more readily state the damage *as a whole*, including value of land, you may report in that way.

4. I add copy of memorial of Mr. Upham, of Onslow, of date 10th March, 1871, about damage he claims to have sustained. When in that neighborhood, please look in to the matter and report.

I am, Sir,

Your most obt. servt.,

C. S. ROSS,

Sec.

5560

(303)

QUEBEC, 6th April, 1871.

COLLINGWOOD SCHRIEBER, Esq.,

Ottawa :

MY DEAR SIR,—I was glad to hear from Mr. Fry, you and he had some conversation together as to matters on the Bay de Chaleur Sections.

I am glad to say we are to-day in receipt of a telegram from Bathurst to the effect that masonry was again begun yesterday at the Nepissiguit Bridge, and all was going well. Since you were here we have been busy getting up engines for hoisting and pumping, and I am glad to say we are sure of one of 6-horse power and two of 12-horse power by 1st
 5570 May; another of 12-horse power is in doubt for the moment, but I fancy the party will accept our terms rather than lose a sale. Thus we will only have two small ones of 6-horse power to get ready, and if we do not get them before 1st June, it will be time enough, as the Christopher Brook Bridge or viaduct is not yet decided on, and the masons and stone-cutters will not be losing time, as they can go on dressing and preparing stone. I am also glad to say our advices from Glasgow by last mail were to the effect that the chain for cranes and wire rope for derricks are to come out by first steamer clearing on the 11th inst.; and the Portland Cement (1,200 barrels) and iron tubes are now being shipped direct for Dalhousie by sailing vessel. Add to all this the fact that we have arranged for glycerine for Morrissey's Rock (and the balance of our rock if experiments warrant), to be tried early on
 5580 opening of navigation, and I think you will admit we have not been asleep, and that those reports about the backwardness of the Bay de Chaleur Section, which were in everybody's mouth, sprang out of anything but good will to either the contractors or their sureties. Barring accidents uncontrollable, these sections will receive a pretty good shaking this season, and especially if we get one at least of the two steam shovels you spoke about. By the way, what terms as to payment is Mr. Higginson instructed to demand? Mr. Fry, in speaking to Mr. Fleming about these, forgot to ask this question. I may say we are buying the engines already referred to on 4 months acceptances, and presume similar terms would be accepted for the steam shovel. Would you oblige me by asking Mr. F.? I know he does not wish to interfere in a sale of those personally, but I merely want to save time in communicating with
 5590 Halifax to Mr. Higginson.

The probability is either Mr. Fry or myself will go down to the sections about the 9th May. What is the probability of your going then? If convenient, would be glad if we could go together; presume, however, your time is more precious than to wait until then.

We are also getting some dump-cars on the same pattern as McGreevy's, which no doubt you have seen on your late visit.

Believe me, your faithfully,

WM. HOME.

(304)

DALHOUSIE, 11th April, 1871.

P. A. PETERSON, Division N :

5600 MY DEAR SIR,—Will you please take a copy of this tracing and letter (enclosed herewith), and return them to me. You will also have the work carried out in accordance

therewith. The stepping in at the first horizontal wall, you will perceive is made with *two* steps of 6 inches each; this is hardly necessary with two feet courses, unless to secure the bond; but as it will all be covered with earth, it had better be done as shown. You will perceive that an alteration is made in the form of the concrete, and the loopholes done away with. Point out, or rather alter the contractor's tracing accordingly.

Yours truly,

(Signed)

M. SMITH.

(805)

BATHURST, April 11th, 1871.

5610 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I think I understood you to say that if long stones were used for covering the five feet spans in the Nipissiguit abutment, that the corbels might be left out and the covers put on as below :

(Sketch.)

seven feet long and two feet thick, giving a foot bearing on each wall. Some of the covers will be eight feet long, and so meet on the middle wall.

I suppose I may allow Bertrand to put a two feet pier in the double box culvert at 5620 856 if he asks for it.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(806)

BATHURST, 11th April, 1871.

MARCUS SMITH, Esq. :

DEAR SIR,—In my letter accompanying the progress estimates for the month of February last, I mentioned that the contractors had delivered about 150 yards of stone, which had been condemned by the Masonry Inspector early in the month, therefore I did not return it.

When taking up the estimate for March, I, in company with Mr. Fotheringham, 5630 Masonry Inspector, again inspected the said stone, which is delivered at or near stations 865, 888 and 909, and we utterly condemned it as unfit for railway work.

The contractors, I understand, care not about its being rejected, but intend placing it in the work, *which work* we may afterwards condemn if we see fit.

I wish you would give me full instructions how to act in the matter.

I also enclose you the Masonry Inspector's report to me on the subject.

I remain, yours very truly,

(Signed)

CHAS. ODELL.

(807)

DALHOUSIE, 11th April, 1871.

To SANDFORD FLEMING,

5640

Ottawa :

Masonry Nipissiguit Bridge re-commenced fifth inst. Coffor dam, at Jacquet River, Section 6, commenced about same date.

M. SMITH.

(808)

BATHURST, April 12th, 1871.

CHAS. ODELL, Esq.,

Division Engineer, Contract No. 9 :

My DEAR SIR,—In reference to the stone delivered at Stations 865, 889 and 969, which I inspected with yourself on the 28th March, I am the more fully convinced that it is utterly unfit for railway work. I have been a mason these forty years. I have never seen
5650 such stone delivered for any class of masonry.

I inspected some of this stone on the 7th February, and also the quarry from whence it came, and I then utterly condemned it. From the effect the weather has had upon it since, confirmed my first opinion.

(Signed)

JOHN FOTHERINGHAM,

Inspector of Masoury,

Contracts Nos. 9 & 15.

(309)

DALHOUSIE, 12th April, 1871.

P. A. PETERSON, Esq.,

Division N :

5660

My DEAR SIR,—Referring to the west abutment Nipissiguit Bridge, the stones got out by the contractor for the horizontal binding wall are long enough and thick enough to do without corbelling in ordinary cases ; but as in this case the outside walls above are to be set in one foot to bring the abutment to the width of the drawings sent by Chief Engineer, it will be better to corbel at least the outside walls with one course two feet thick, thus :

(Sketch.)

This is supposing the covering course to be three feet thick ; but if the covering is in two courses, both sides will have to be corbelled, as shown by the dotted lines A.

Of course you will not suggest anything, but let them work by the plan ; but if they have got out stone of large dimensions, as here shown, you may allow them to deviate from
5670 plan thus far, *if they ask it in writing.*

Yours truly,

(Signed)

M. SMITH.

(810)

BATHURST, April 13th, 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—Yours of the 11th inst., containing Mr. Forrest's letter and plan was received yesterday, and I now return them.

The first horizontal wall will be made *four* feet thick instead of three, as the stones are generally cut in 2'0" courses.

5680

I also return Mr. Forrest's plan of the abutment, dated December 24th, 1870.

Yours very truly,

(Signed)

P. A. PETERSON.

(811)

MONCTON, N. B., 12th April, 1871.

WILLIAM HOME, Esq.,

Quebec:

5690

MY DEAR SIR,—I received your letter of the 6th inst. just as I was leaving Ottawa. I therefore had no opportunity of complying with your expressed wish, by speaking to Mr. Fleming about the steam shovels; however, had I done so, I am satisfied I should have been referred to Mr. Higginson, as they are in his hands for disposal; so, as your object appeared to be to save time, I made an abstract of your letter and forwarded it to Higginson. You will therefore probably hear from him upon the subject. I am very glad to hear you are making such good provision to overcome the difficulties attending the taking out of the foundations of structures, and I think so soon as the appliances reach the works you will not delay setting them in motion, and that, when I next visit the sections, I may find everything being pushed briskly, and moving along like clockwork. With sound management, close attention and ordinary energy, a good season's work may be done. I am pleased to hear you have made an early beginning upon the Nipissiguit Abutment; however, unless Dame Rumour is at fault, I fear all is again at a standstill, a report having reached here that the Masons are on the strike. I trust, however, this may prove to be incorrect, and that all goes on flourishingly. If you are really in need of plan of Christopher's Brook Bridge, do not delay applying to Mr. Smith for it, as I am sure he will furnish it without delaying a moment.

5700

Yours truly,

COLLINGWOOD SCHREIBER.

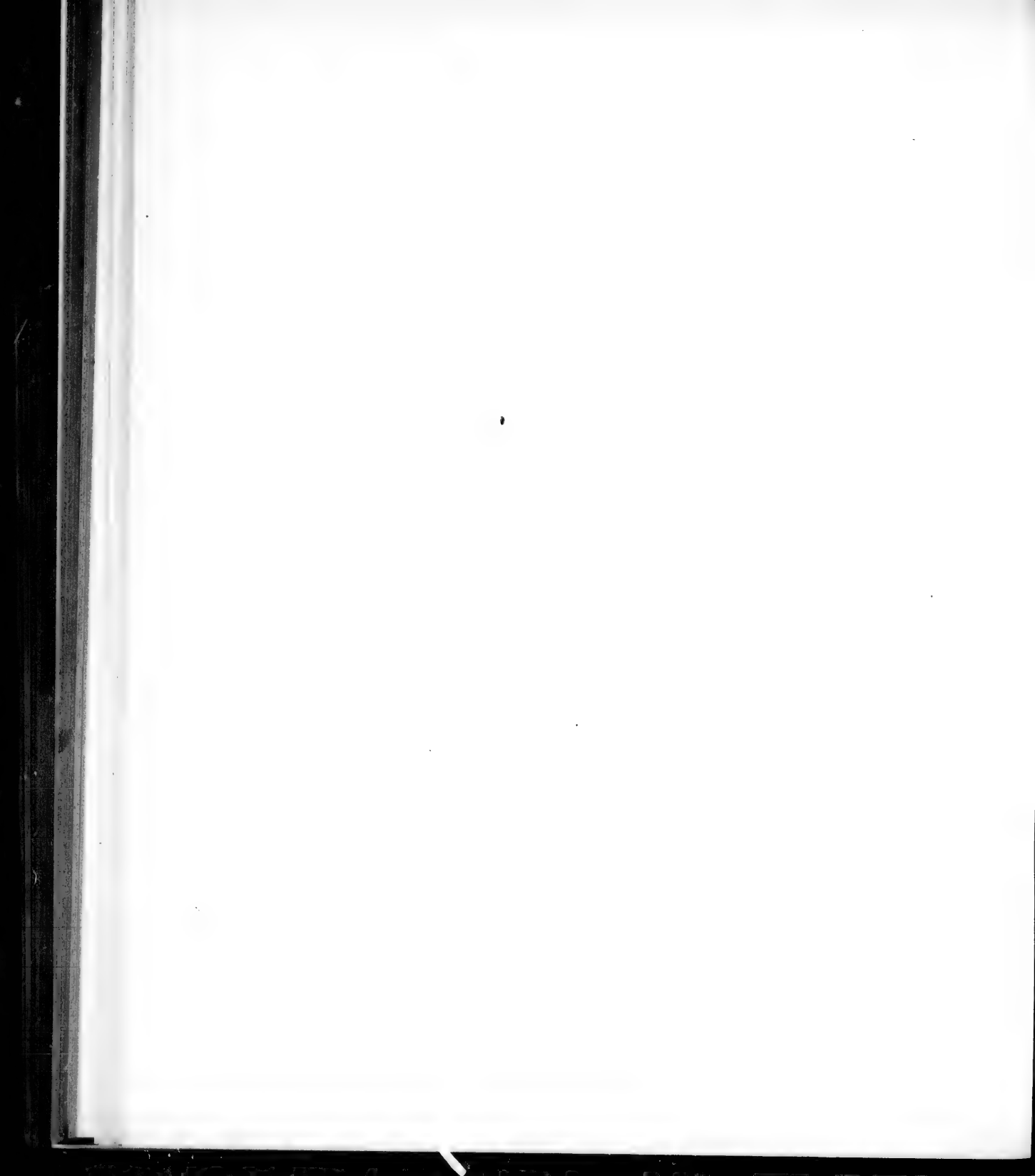
(812)

BATHURST, 14th April, 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—On receipt of yours of the 12th inst. this morning, I went out to the bridges, taking with me the new plan received on the 12th, left it with the Foreman, who returned the old plans.



5710 The Foreman says he has no stone to corbel as shown in the plan, neither has he any stone to put in a three foot cover, so he will build the wall as below :

(Sketch.)

and tell Bertrand that is the best way to do the work. Bertrand is now some place up the line, and as soon as he returns I will get a letter from him asking for this change. I suppose I should get the letter before I allow the deviation ; but in that case I would have to stop the work. As Bertrand is so seldom here, I shall ask him to give his foreman authority to ask for changes. The sixth course will be finished some time to-day, and the corbelling will be on the seventh course.

The snow that fell on the 12th is nearly all gone, and the weather is fine and warm,
5720 little or no frost at nights.

Yours very truly,

(Signed)

P. A. PETERSON.

(818)

DALHOUSIE, 15th April, 1871.

P. A. PETERSON, Esq.,

Division N.

MY DEAR SIR,—I have received your letters of the 13th and 14th instant, with Mr. Forrest's letter, and tracing of the west abutment of the Nipissiguit Bridge returned.

No letter from Bertrand is required for the changes in the plans of the west abutment of the Nipissiguit Bridge made by the Chief Engineer. It is only when deviations from the
5730 plans or schedule of works are proposed by the Contractor for his benefit, that a written application is necessary. The plan of corbelling and building the horizontal walls is very good ; let him go on with it and say nothing to Bertrand about it, as he really does not know anything about masonry, and his foreman evidently understands his work. For my part, with such magnificent stone, I would have no hesitation in making the horizontal, or tie wall, of one course only of two feet, but the Chief Engineer is very strict that no deviations should be made from the plans without very strong reasons. Now this abutment is of considerable height, and I see on sheet 13, general drawings, that the horizontal walls are five feet thick. This is of a Grand Trunk Bridge, I believe, copied, and the horizontal wall reduced to three feet by Mr. Fleming, so you may let him build the first wall two courses,
5740 and the next I shall let one course do (of two feet) ; this will bring the quantity of masonry same as on the drawing.

Yours truly,

(Signed)

M. SMITH.

(814)

DALHOUSIE, 15th April, 1871.

C. ODELL, Esq.,

Division M.

MY DEAR SIR,—In reply to your telegram of yesterday, I know of no change necessary at present in the plans of the bridge at Elmtree River, as it is only those bridges of 80 ft. span and upwards that are decided to have iron tops ; though Mr. Fleming hopes he will

5750 shew sufficient cause to have iron superstructure for all the bridges, but if the Contractor is ready to go on we cannot ask him to wait, so you will have to furnish him with tracings of the plans you have.

In reply to your letter of the 11th inst., you must not on any account allow improper stone to go into the work, to be condemned afterwards, as this will waste time in removing, and the Contractors are far behind with that work.

Yours truly,

(Signed)

M. SMITH.

INTERCOLONIAL RAILWAY,

Engineer's Office, Restigouche District,

BATHURST, April 15th, 1871.

5760 (815)

MARCUS SMITH, Esq.,

District Engineer, Dalhousie :

MY DEAR SIR,—

* * * * *

I have been out at the bridge every other day since you were here. The cement they are putting in is setting very well. The Contractor is getting in his foundations at 264 and 356. Below, is a sketch of the kind of work put in these box culverts.

SKETCH.

Longitudinal Section and Cross Section.

5770 No stone below the level of A B is dressed, but levelled up with small pieces of stone and cement. The foundations for the walls C and D, are dressed as is all work above. As the beds of granite are generally rounding, there is a great deal of cement and small stone used in levelling up the top course of the foundations.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(316)

BATHURST, 17th Avril, 1871.

CHAS. ODELL, Ecr.,

Ingénieur (No. 9) :

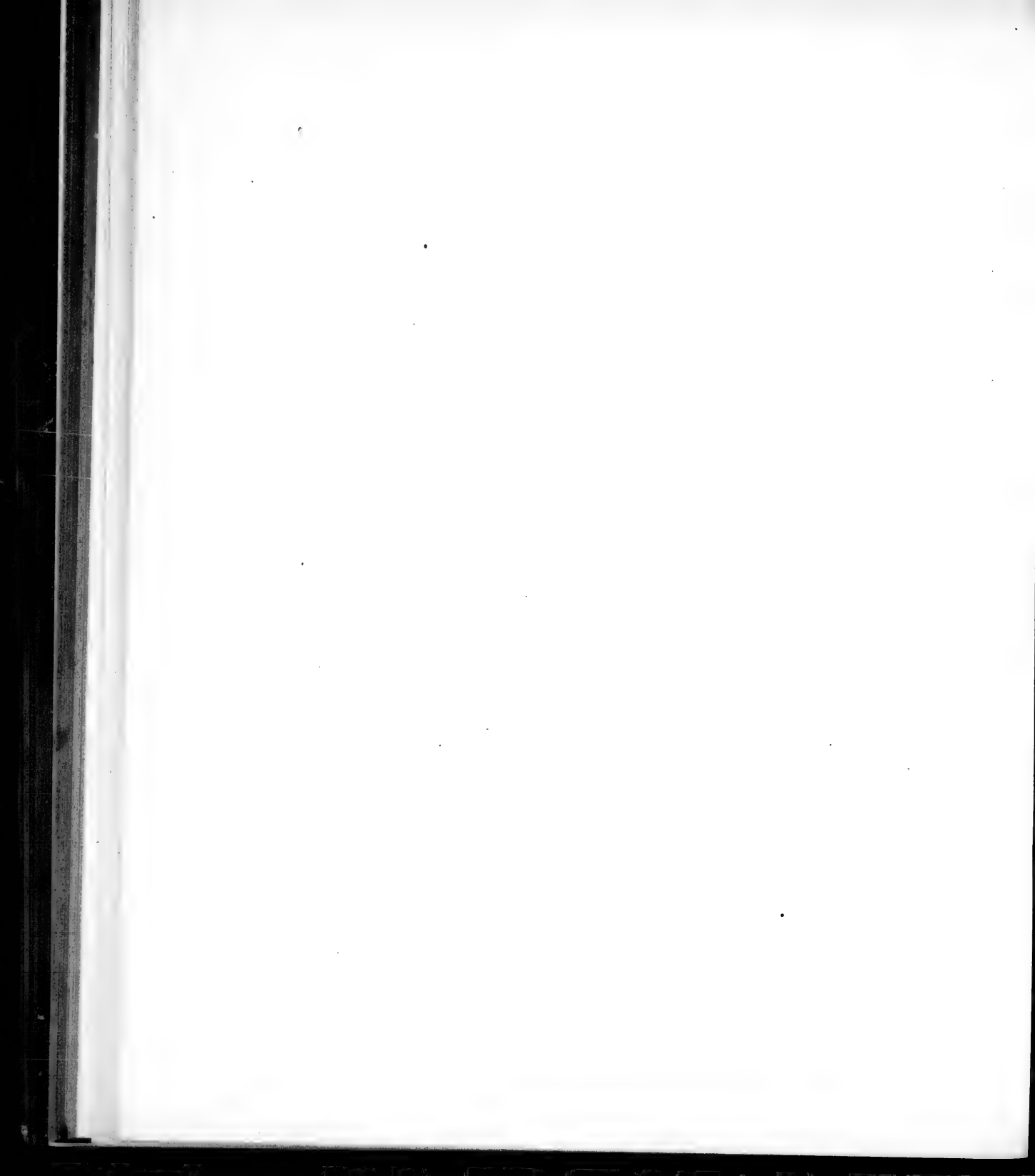
5780 Station 148. MONSIEUR,—Auriez-vous la bonté de me laisser avoir le plan pour la *culvert* à la

Aussi le plan de la *culvert* à la Station 109. En faisant, vous obligerez

Votre serviteur,

(Signé)

J. B. BERTRAND.



(817)

BATHURST, April 17th, 1871.

P. A. PETERSON, Esq.,

Bathurst :

SIR,—We expect that you will have no objections to our making the centre wall of "Culvert" at Station 356÷62, of two feet in thickness, instead of two feet six inches. We will therefore put but one stone to form the thickness of the wall.

5790

Hoping you may be pleased to favor our request.

We remain, Sir,

Yours obediently

(Signed)

J. B. BERTRAND & CO.,

Per J. McGinly.

(818)

BATHURST, 17th April, 1871.

P. A. PETERSON, Esq.,

Bathurst :

SIR,—If you would please allow us to change the culvert at Station 482 into a box of 2 feet by 2 ft. 6 in., instead of the four feet arch, mentioned on plan, you will confer a favor.

5800

Yours most obediently,

(Signed)

J. B. BERTRAND & CO.

per B. B.

(819)

DALHOUSIE, 18th April, 1871.

MY DEAR FORREST,—Your letter of the 1st. April, with tracing shewing the method of stepping in the west abutment of the Nipissiguit bridge so as to bring it to the same width as shewn in the plans sent here in December, and also shewing some alterations in the parapets and concrete between the same, was received in due course and a copy put in the hands of the contractors, and the abutment is now being built accordingly.

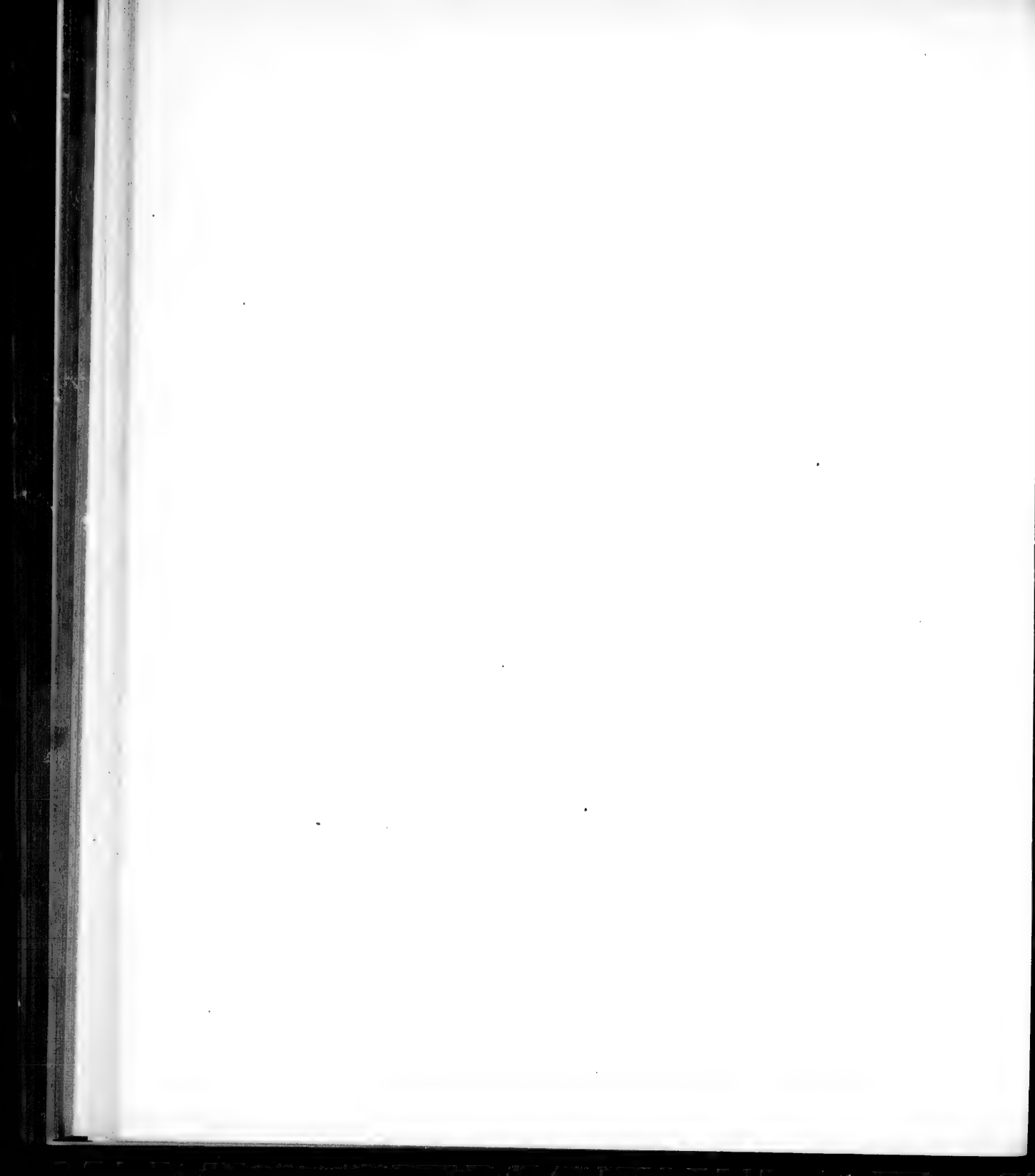
I suppose this drawing (above the stepping) will be a sample for all iron bridges of 5810 100 feet span running on the upper chord, viz :

Width of abutment (over all)	20 ft. 0 in.
From bridge seat to formation level	12 " 6 "
Width of bridge seat (exclusive of chamfer)	4 " 0 "
Length varying according to circumstances.	
Loop holes abandoned and concrete laid to drain to centre.	

In your letter of March 8th., you say that all bridges of 80 feet span and upwards are to be of iron; I presume those of 80 feet will be in every respect the same as the above, except the following, viz :

5820

Bridge seat to formation level	*
Width of bridge seat	*



I shall also have several bridges of 80 feet span running on the lower chord. In your telegram of the 7th, February, you say:

"Abutments for iron bridges with track between girders, same as sheet 20, general plans, width between girders, 16 feet clear, in all cases where track is on lower chord."

And in your letter of 6th January, you say:

"Mr. Fleming has decided on making the width of piers on the top the same as that of the face of the abutments (C to D on general plans, sheet 20) &c."

There may be exceptions to the above instructions in the following, viz:

5830 From formation level to bridge seat. *
Width of bridge seat. *

If you can fill up the four blanks marked * will you please telegraph them to me as we are now drawing some of these bridges.

I have several bridges under 80 feet span, (plans of some of them already in contractors' hands) I suppose they will have to go as they are at present, viz: timber bridges. If you succeed in getting them changed to iron bridges, I dare say it will be done before the contractors have done much on them, according to present rate of progress.

Will you please examine carefully the above recapitulation of changes, and see if I have got them all right.

Yours truly,

5840

(Signed)

M. SMITH.

(320)

BATHURST, April 19th, 1871.

P. A. PETERSON, Esq.,

C. E.:

SIR,—We beg most respectfully to ask you to change the grade between 260 and 296 to two feet lower, following the conditions you have already proposed to us.

We remain, Sir,

Your most obedient,

(Signed)

J. B. BERTRAND & Co.

Per J. McGinly.

5850

(321)

MADISCO, 20th April, 1871.

CHAS. ODELL, Esq.,

Engineer.

SIR,—Will you be kind enough to set culverts at Stations 95, 109, 825, 938, and also arch culvert, Station 148.50. By so doing, you will oblige,

Yours very respectfully,

(Signed)

J. B. BERTRAND & Co.,

Per J. A. Turcotte.

(822)

BATHURST, April 20th, 1871

MARCUS SMITH, Esq.,

5860

District Engineer,

Dalhousie :

MY DEAR SIR,—I enclose you copies of letters received from Bertrand & Co., asking for changes.

I gave them forms of the letters I wanted, but they would not follow them.

In the letter asking for the grade to be lowered between 260 and 296, I wanted them to say that if the grade could be lowered and the surplus of excavation left for ballast, that then they would in consideration of this, and the consequent shortening of two culverts, substitute a road bridge at 284, instead of cattle guards, and the excavation for road approaches for a level crossing. If these letters will not answer, let me know and I will try

5870 to get others.

Yours very truly,

(Signed)

P. ALEX. PETERSON,

(823)

QUEBEC, 20th April, 1871.

COLLINGWOOD SCHREIBER, Esq.,

Moncton, N. B. :

MY DEAR SIR,—Your esteemed favour of the 18th is to hand two days ago, and I am much obliged for sending extract to Mr. Higginson as to steam shovel; as yet we have no reply. I am glad to say all the engines will be had in Quebec; we were afraid we would need to import them. As to the rumour of a strike, that letter is the only intimation we have had so far, and presume it is one of those usual squabbles which rise to subside again in a few hours, something like the strike the day before your arrival at Bathurst, which you saw nothing of, it having blown over. Such is one of the *pleasantnesses of railroading*.

I intend being down in May, and if you would kindly telegraph me about the beginning of May when you are likely to be in our sections, I would strain a point to be there at same time. I want to have our measurements tested fairly between man and man. I have only got the returns from No. 8 for March, it shows following due in that month, viz:—

Rock, 2,113 yards, which at Fleming's estimate, 88c	\$1,860
Earth, 4,375 " at 18c.....	787

MATERIALS DELIVERED.

5890

Cut stone, 1st class, 73	} Smith said he allowed 6 1/2	
" Ashlar, 50		
" 2nd class 192	" " at 3.....	576
Backing, 1,532	" " at 2.....	3,064
Fencing, 6,340 P S.,	at 5.....	317
Special over work, Hill's Creek.....		386

\$7,601



I think for the materials delivered, I am inside of what should be a fair allowance. However, call it in round figures \$7,000, *for arguments sake*, and bearing in mind we draw nothing on account of contingencies, (which by Mr. Fleming's distribution operates against us 5900 in this proportion, viz :—

\$150,000 Mr. Fleming's Contingencies,
100,000 Our contingencies,

of \$44,000 amount accumulating in the hands of the Commissioners,) we might fairly expect a return of \$7,000 for No. 3 alone. Unfortunately, we are not in possession of separate amounts of the warrants for each section. No. 3 and 6 for March are only returned \$8,100, and I am certain as much was done on No. 6 as No. 3. You will thus see it is evident no improvement is being made in the returns, spite of all assertion, and we do trust therefore you will on your next visit satisfy yourself on this point of measurements and allowances. You have always yielded the point that *full* allowances should be made contractors, and it 5910 was on the faith of being allowed at least an equitable amount that we entered into the contract. I feel sure of your individual action being all that any reasonable man could or should desire, and it is in consequence of so feeling, and knowing the measurements are not full as they ought to be, that I hail with joy your promised visit in May, and I do not have the least doubt but you will find the assertions of both Mr. Bertrand and Mr. Berlinguet borne out by your own tests. It is of no moment to the Government to have \$50,000 to \$75,000 lying in its hands, but the interest on that amount to us is serious.

We are perfectly aware there is every disposition to see justice done us from the powers that be. All we ask is, let us have *an outward and visible sign of it*. Please shy me a telegram,

5920

And believe me,

Yours sincerely,

WM. HOME.

(824)

BATHURST, April 27th, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

My DEAR SIR,—I see the contractors are making preparations to take out the remainder of the foundations for the Tete-a-gauche abutments. They are now down some three or four feet into a good bed of gravel. I shall let them go down seven feet, the depth 5930 shown on the general plan of the bridge, and I think borings should then be made to test the depth of this gravel bed, as the west abutment will be 60' high and the pressure on the foundation will be about three tons per square foot, exclusive of the pressure of the embankment.

If we are to make the borings we should be in readiness to do so by the end of next week, by the farthest. I suppose this will be an iron bridge, and the plan of abutment will

be similar to that for the Nipissiguit, with the exception that the number of horizontal walls be increased.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

5940 (825)

BATHURST, April 27th, 1871.

P. A. PETERSON, Esq.,

C. E.,

Bathurst :

Will you please give us the centre points of the first pier on the west side of Nipissiguit River as soon as convenient, and oblige

Your most obed.,

(Signed)

J. B. BERTRAND & Co,

Per B. Bullick.

(826)

DALHOUSIE, 1st May, 1871.

5950 To the HONORABLE COMMISSIONERS,

Intercolonial Railway :

GENTLEMEN,—We now beg to give you in detail the reasons which caused us to telegraph to you on the 24th April, respecting our work in preparing for the coffer-dams at Mill Creek, being delayed by Mr. Smith's refusal to mark out the foundations for the piers ; he giving as a pretext that we ought to commence by the abutments, but we contend that it is greatly to our advantage to commence first the preparations for the piers.

(1stly.) Because the ice being firm, one pile-driver can do its work without the expense of constructing a scaffold.

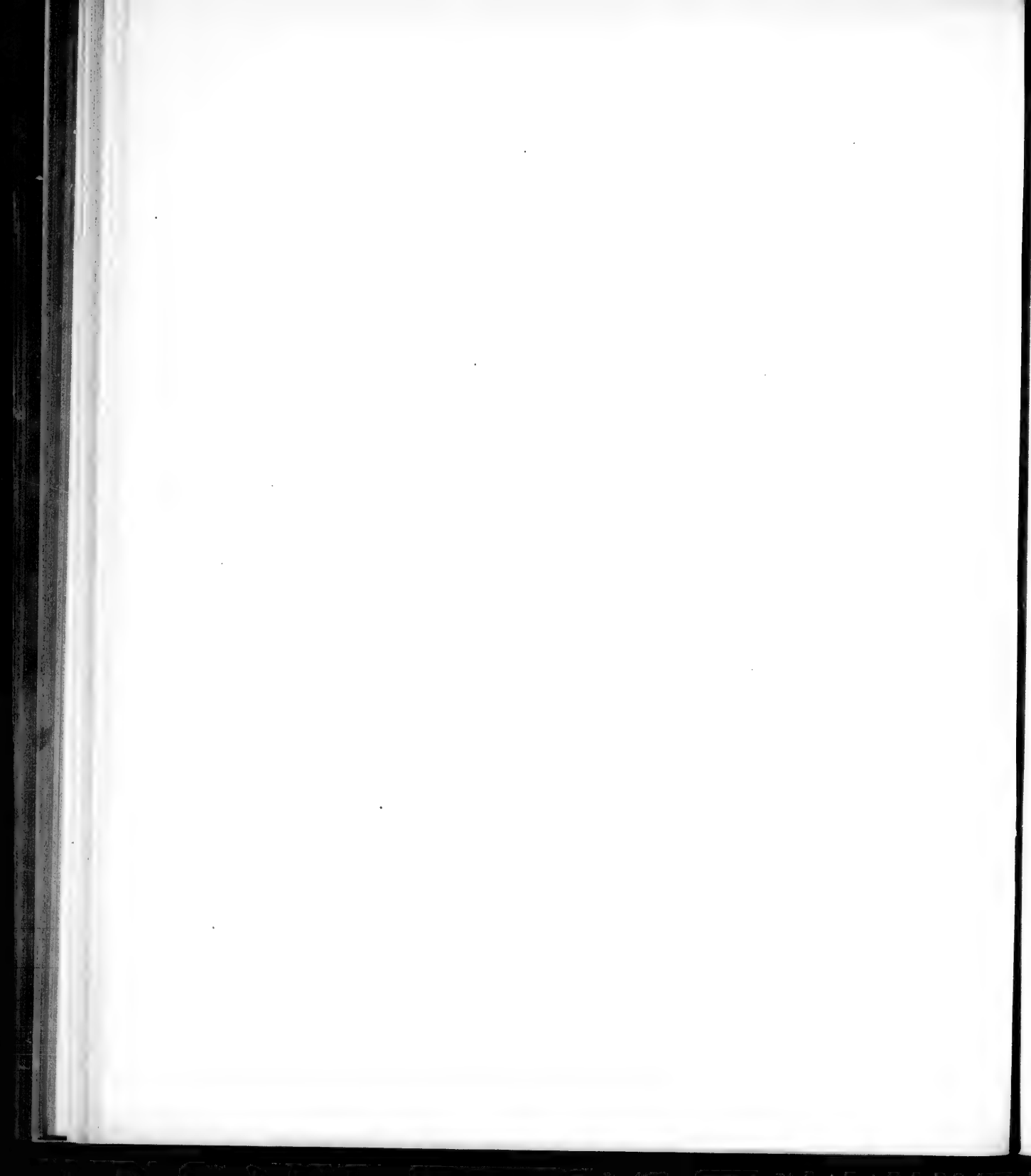
(2ndly.) As a break up of the ice may shortly be expected, the piles for the coffer-dams for the piers are evidently in the most exposed position, whilst those for the abutments can be done at any other time on account of the crib work which protects them, and which of itself forms a scaffold for the pile-driver.

(3rdly.) That for the two piers it requires only about 300 yards of masonry, the stone for which is already prepared for building, and lying on the wharf at Bathurst waiting for transportation ; as is also that for the two piers at the river Jacquet.

(4thly.) That the stone so prepared is too large for the walls of the abutments which are but four feet thick ; whilst it is exactly the size and proportion for the piers which are 6 to 7 feet thick, the stone prepared at Bathurst being not less than 3 to 4 feet square, and cannot be employed on any other work so advantageously.

5970

(5thly.) That Mill Creek and Jacquet River are the only two places where the stone can be transported direct by water to its destination ; thus avoiding the expense of a double



handling. Bertrand even has no place on No. 15 where the stone can be used with equal facility and economy. We make this remark because Mr. Smith and the other Engineers pretend that we have stone enough on this section without going to No. 15 for any.

(6thly.) Because we have quarries in close proximity to Mill Creek, where stone of good dimensions for the abutments can be obtained, but not so advantageous for the piers as the Bathurst granite, specially quarried and dressed for them.

We think gentlemen, that the reasons we have given are sufficient to prove that our works are not being conducted by incompetent persons who know not what they are about, and further we defy Mr. Smith to give a single valid reason to prove that we are wrong in preparing for the piers before commencing the abutments.

We profit by this occasion to inform you that the ship "Annabella" belonging to Mr. Moffat has arrived at Dalhousie, having on board for us 95 iron tubes of 9 feet long, and 66 of 3 feet long, sufficient for 36 culverts on No. 3, and she has also for us 370 barrels of Portland Cement.

We have no doubt Mr. Smith will take account in his report of these materials which may now be considered as on the line, and which form a costly item of outlay.

We are, gentlemen,

Your obedient servants,

F. X. BERLINGUET & Co.
Contractors Sections 3 and 6.

5990

(827)

BATHURST, May 1st, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I have your telegram of this date, with instructions to return the stone as usual. I have accordingly returned all the stone in the quarries, &c., in the certificate, which I now enclose.

Yours very truly,

P. ALEX. PETERSON.

6000

(828)

BATHURST, May 2nd, 1871.

MARCUS SMITH, Esq.,

Dalhousie :

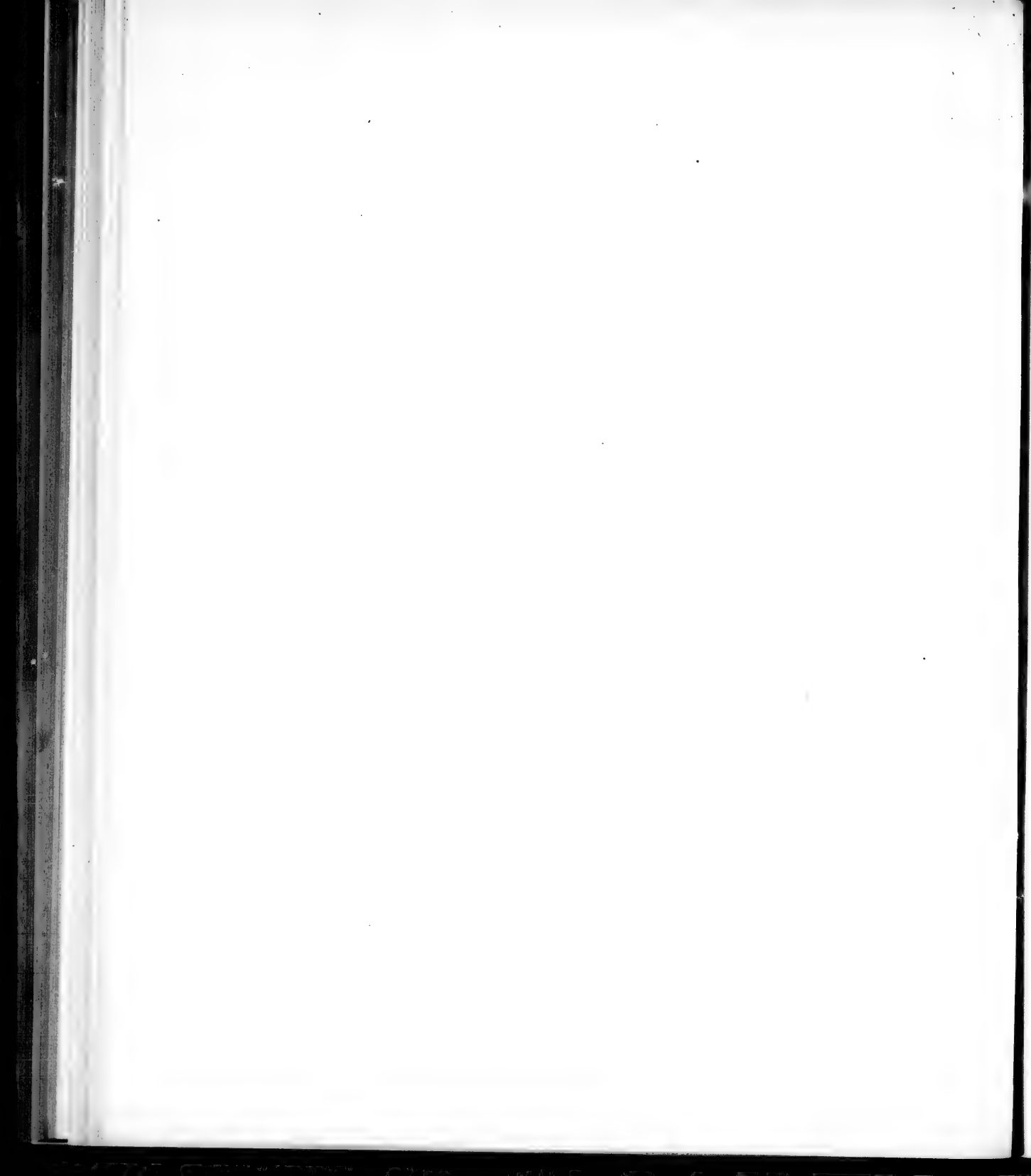
MY DEAR SIR,—I herewith enclose the progress estimates for the month ending 30th April, 1871.

They have, as usual, opened and abandoned one or two quarries during the month. They are now getting stone alongside the cutting at Station 127; it is a good hard lime-stone with good beds, and if it holds out as well as when I visited it the other day, they may procure the stone for Belledune River and Armstrong Brook structures from it.

6010

Yours very truly,

CHARLES ODELL.



(829)

BATHURST, May 8rd, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—Mr. Bethune called yesterday to see about plans for the Tête-à-gauche Bridge. He wants to know if he can make the abutments thus :

(Sketch.)

leaving out the cross wall, but making the outside wall thicker and the angles stronger.
6020 putting the same amount of masonry in the abutment.

He also wants to know if cutwaters are required in this bridge—and if they are—wants to make them thus :

Sketch

a simple right angle, in part similar to the down-stream ends of the Nipissiguit cutwaters. He says this plan has been adopted on No. 8 and in No. 6.

I forgot to mention that he says the plan of abutment he proposes has been allowed on Contracts Nos. 1 and 2. I think on Nos. 1 and 2 the abutments were made solid.

Mr. Bertrand leaves to-day for Nova Scotia, Boston, &c., to see some steam shovels ; he says he intends to put one in the cut at the Nipissiguit.

6030 How would you like the stones on the bridge seat arranged ? I have been thinking of having them put in thus :

Sketch

So as to get the bearing of the girder as near as possible in the centre of the stone.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(880)

MADISCO, 8 Mai, 1871.

CHAS. ODELL, Ecr.,

Ingénieur de Division :

6040 MONSIEUR,—J'espère que vous aurez la bonté de marquer les fondations pour les ouvrages mentionnés dans mes deux dernières lettres. Mon conducteur me dit avoir mis les places prêtes.

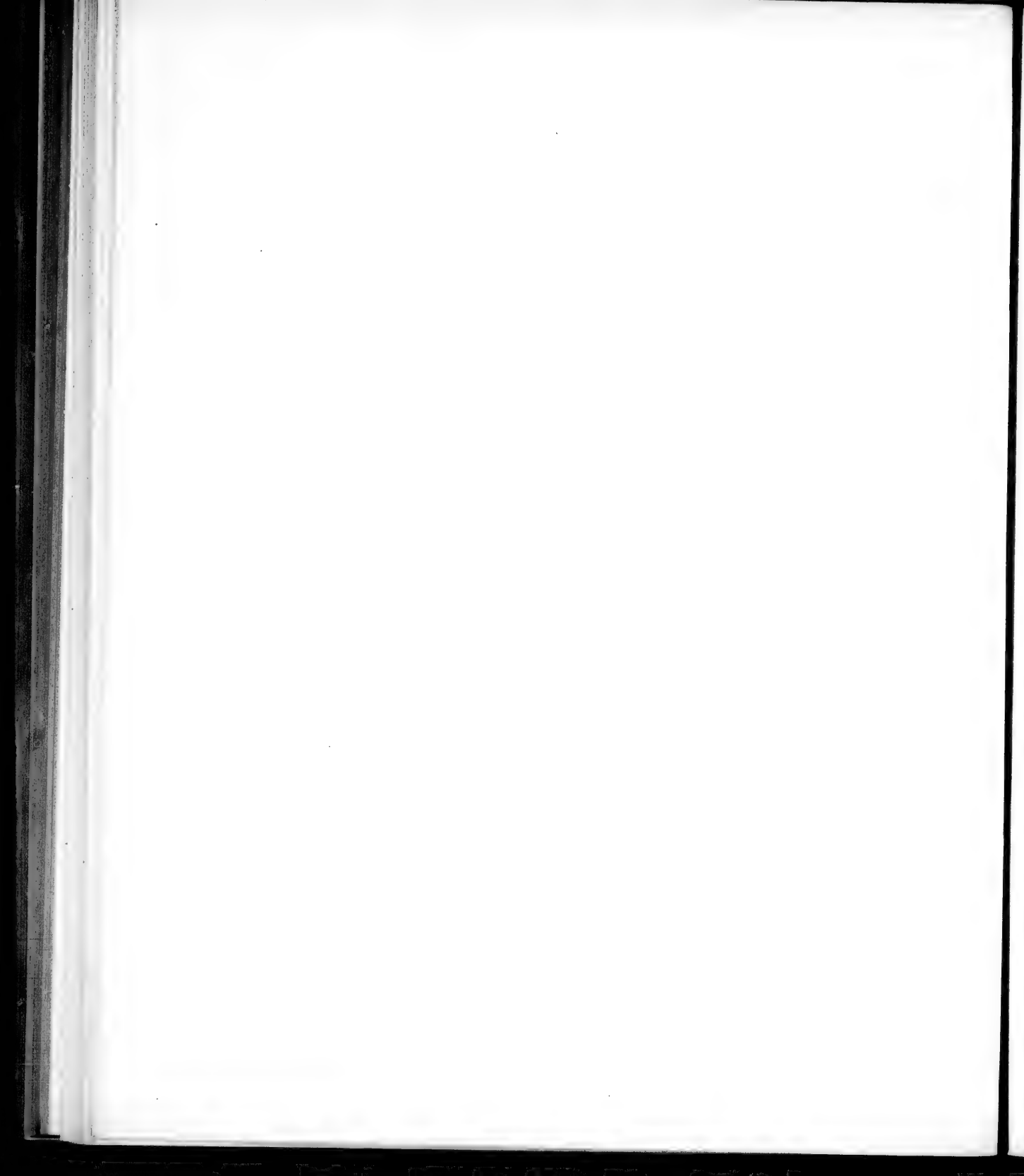
Celle qui presse la plus est pour la reconstruction du petit pont du chemin.

En faisant vous obligerez,

Votre serviteur.

(Signed)

J. B. BERTRAND.



(881)

BATHURST, 8 Mai, 1871.

A. M. SMITH, Ecr.,

Ingénieur du District de Restigouche :

6050 MONSIEUR,—Mr. Peterson m'informe que la fondation du abutement pour le pont de Tête-à-gauche, ne doit avoir pas moins de sept pieds de profondeur. Je ne crois pas qu'il soit nécessaire d'aller aussi profond, vu que ce quai doit être entouré de pas moins de cinquante pieds de terre, et que la nature du sol est la même.

Si vous avez la bonté d'y porter votre attention, vous obligerez beaucoup,

Votre serviteur,

J. B. BERTRAND.

(882)

DALHOUSIE, 5th May, 1871.

CHARLES ODELL, Esq.

Division M:

6060 MY DEAR SIR,—The Commissioners are going to make a tour over the line, starting from Montreal on the 22nd inst. I should like to have collected in a compact form to carry with us such information as they are likely to ask for, say :

(1.) A copy of the certificate for April (or May, if it can be ready before they get down to your division).

(2.) A list of the cuttings commenced, shewing the quantity done and remaining to be done in each.

(3.) The profile, colored up to the last measurements.

(4.) The structures in masonry that are commenced, shewing the quantity done and remaining to be done in each.

6070 (5.) The total quantity of stone that has been delivered on the line since 1st January last.

(6.) A list of the quarries now being worked.

(7.) About the average force employed during present month.

Anything else you think of.

All these may be in one or more sheets of foolscap, and might be temporarily fastened into the schedule of works which could be conveniently carried when rolled up. Please shew this to Peterson to save me writing.

Yours truly,

(Signed)

M. SMITH.

(888)

BATHURST, 5th May, 1871.

6080 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—Rock has been found in the foundation of the west abutment of the Tete-a-gauche Bridge at an elevation of about 105, a little over four feet below the surface, the rock is similar to that in the rock cut at 180, very hard but full of seams and standing much on its edge.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(884)

BATHURST, May 6th, 1871.

6090 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—In your letter of the 15th ult., you say you will allow the second horizontal wall to be made 2 feet instead of *three* as shown in the plan. The contractor is now getting out these covers; they are splendid stones being 7 and 8 feet in length, four feet wide and two feet thick, will it be necessary to corbel under them. The foreman is talking of putting in the stone for the Bridge seat in three, each to be 6'. 8" $\times$ 5' $\times$ 2' thus:

Sketch.

I would prefer to have the girders resting on the centre of the stone. I suppose
6100 you have no plan of the girders yet and cannot tell exactly where the bearing will be.

Yours very truly,

P. ALEX. PETERSON.

(885)

BATHURST, 8th May 1871.

MARCUS SMITH, Esq.

MY DEAR SIR,—The proprietors, Messrs. *Godin & Haché*, of the land through which I laid out the road diversion near 775 have lately thought fit to raise an objection to the road passing through their lots on the south side of the railway, unless they receive some absurd compensation or damages. They imagine it must of necessity go there and consequently make an exorbitant demand.

6110 Mr. Bertrand asked me to examine whether I could alter it in any way, as they are ready to make the road now.

I did so and send you a sketch with a proposed alteration as shewn by a dotted blue line, by adopting this, we carry the road altogether on our own ground, making equally as good a road, and have Messrs. Godin and Haché's lands untouched, as according to the land plan we have 75 feet extra width both sides exclusive of the statute quantity of 50 feet each side of centre.

Please let me know by telegram whether I shall adopt the proposed alteration, that I may set it out at once.

Yours very truly,

6120

(Signed)

CHAS. ODELL.

(886)

10th May, 1871.

P. A. PETERSON, Esq.,

Division N. :

MY DEAR SIR,—I have your letter of the 5th and 6th instant. I am very glad that you have found rock in the foundations for the Tête-à-gauche Bridge, as I was rather anxious about those on account of the height of the abutments and piers. You will have the rock levelled off to the solid with as few steps as possible.

Nipissiquit Bridge (west abutment). I have no objection to one course of 2 ft. in thickness for covering the openings at the top of the abutment, but it must be corbelled under as shewn on the drawing, as the Chief does not wish any deviation from the general plans where it can be avoided.

As regards the stones at the bridge seat, the girders should rest on the centre of a large stone (each), but as I have not yet a drawing of the girders (no tenders being yet accepted), I cannot tell what distance the girders will be from centre line, but if there were 4 stones instead of 3 laid to extend across the whole front of the abutment, they would be more likely to be in proper place.

I expect to be down on Tuesday next.

Yours truly,

(Signed),

M. SMITH.

6140

(887)

11th May, 1871.

CHAS. ODELL, Esq.,

Division M. :

MY DEAR SIR,—I have received your favor of the 8th instant, with tracing of the road diversion near 775. I doubt whether I shall be able to decide this before the Commissioners come down, as they think generally that where a bridge has been abandoned and level crossing substituted, or where any change has been made for the benefit of the contractor, he is liable for all obligations and costs incurred by the said change. I think therefore that the contractor will have to arrange for the extra land required. I am also doubtful whether the deviation as shewn by the blue lines will be accepted by the Road Commissioners, or whatever authority these roads are regulated by. You will have to ascertain this, and inform the contractor that he will have to purchase the land and arrange with Road Commissioners or other authority. I shall be down on Monday or Tuesday, either by boat or road, according to the state of latter, and shall telegraph before I start, so as either to meet me or return part of the way with me.

Yours truly,

(Signed)

M. SMITH.

(888)

OTTAWA, 10th May, 1871.

Messrs. J. B. BERTRAND & Co.,

Contractors Sections 9 and 15,

6160

Bathurst, N. B. :

GENTLEMEN,—I beg to inform you that Government have decided that the super-structure of all bridges on the Intercolonial Railway, which are not now erected, shall be made of iron (instead of wood as originally provided), to which change you have already given your assent.

The Chief Engineer will give all needful instructions about changes of masonry where required, and you will be governed accordingly, in respect of bridges on Sections Nos. 9 and 15.

I am, Gentlemen,

Your obedient servant,

6170

(Signed)

C. S. ROSS,
Secretary.

(889)

OTTAWA, May 16th, 1871.

To COLLINGWOOD SCHRIEBER,

Amherst :

Contractors reported to persist in using inferior cement and stone—Sections (6 and 9 six and nine. This must be stopped

(Signed)

SANDFORD FLEMING.

INTERCOLONIAL RAILWAY, ENGINEER'S OFFICE,

(840)

BATHURST, 18 May, 1871.

6180 MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—In places where the embankment will not stand at $1\frac{1}{2}$ to 1, would it not be advisable to lengthen the culverts? The culvert at 474 was laid out for a slope of $1\frac{1}{2}$ to 1 and 4 feet high. It was raised 18", thus making the culvert 27" longer at each end than shown by the tables; and you may have noticed yesterday that the earth was running over the coping, showing that it is still too short. The contractor is nearly ready to commence building at 482. Would you let me know at once if I may lengthen it for slopes, say $1\frac{1}{2}$ to 1; this will make the culvert 75 feet long instead of 67 feet, and making the culvert 2 ft. 6 in. by 8 ft., and 75 ft. long will only give $95\frac{1}{2}$ yards, while 2 ft. 6 in. by 4 ft., and 67 long gives 99 yards. So by lengthening it and making it a foot lower, there is still a saving at $8\frac{1}{2}$ yards.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

(841)

DALHOUSIE, 19th May., 1871.

To P. A. PETERSON, Bathurst:

Make the culverts of the dimensions required, and length according to the slope, irrespective of quantities.

M. SMITH.

6200 (842)

DALHOUSIE, May 31st, 1871.

C. SCHRIEBER, Esq.:

MY DEAR SIR,—I received a telegram yesterday to start for Ottawa at once, and intend to do so to-day. Plans have been sent to McLeod of the abutments at Christopher's Brook, and those for Mill Creek (Campbellton) will be ready in a few days.

I have also sent plan of abutment, Elm Tree Bridge, to Mr. Odell, which is changed from 60 to 80 feet span. Copies will be sent to contractors as soon as possible, meanwhile I have instructed the Engineers to shew the contractors their plans.

I have given all the Division Engineers instructions to be very careful in their measurements, so as to leave the contractors no just cause of complaint; in fact, these are
6210 "standing orders" which however I repeat every now and then.

With regard to materials not on line, I herewith enclose extracts from the Commissioners' letter on the subject, adding my own convictions that if it had at first been made a strict rule not to advance except on materials actually delivered, we should have had very little lying scattered about as it is now, and the contractors would have been in a much better position. I think everything is in working order, and I can assure you the contractors have never been delayed one hour for want of plans, or work being set out. They sometimes have asked for foolish and impracticable things, and most of the work has been set out three or four times.

Enclosed are two letters from Mr. Lawson. Should be glad if you would look into the
6220 matters complained of, only be careful that you are not deceived from the appearance of newly cut stone from Grand Anse. We know from experience, and people resident in the country know, how badly some of it turns out, especially that of a bluish or marl color. Shall be glad if you would give any instructions to the Engineers, only keep a copy of them for me.

Yours truly,

(Signed)

M. SMITH.

(848)

QUEBEC, May 25th, 1871.

C. SCHRIEBER, Esq.,

Dalhousie:

6230 Bertrand will arrive to-morrow; better come up, also Stewart, and complete arrangements.

W. HOME.

(844)

BATHURST, May 25th, 1871.

P. A. PETERSON, Esq., C. E. :

SIR,—Would you please lay out the foundation of beam culvert at Station 551.80 as soon as convenient, and oblige,

(Signed)

J. B. BERTRAND & Co.,
per M. McGinly.

Extracts from minutes of the Intercolonial Railway Commissioners, dated 27th May, 1871 :

6240

" The Secretary was directed to make application for warrants.

\$10,000, Section No. 8, F. X. Berlinguet & Co.

" " 6, " "

" " 9, J. B. Bertrand & Co.

" " 15, "

These advances to be adjusted out of former estimates, and thereafter (on 3rd July) to be again applied for as continuous advances, over ordinary estimates, until further orders."

" It was resolved that Mr. Fleming be instructed to prepare new schedules upon which monthly estimates may in future be based, spreading the contract sum over the revised quantities as at present ascertained, and including reduction of masonry, caused by the substitution of iron for wooden bridges, so that the Commissioners may recommend these new schedules to the Governor in Council for adoption."

6250

(845)

BATHURST, 27th May, 1871.

MARCUS SMITH, Esq. :

MY DEAR SIR,—The contractors have asked to have the west abutment of Elm Tree River Bridge set out.

Please let me know by telegram, on receipt of this, whether it will answer to set out the foundation by the *plan I now have*; or if there is any material change let me have the dimensions, so that I can set it out with the least possible delay.

Yours very truly,

6260

(Signed)

CHAS. ODELL.

(846)

DALHOUSIE, May 29th, 1871.

To CHAS. ODELL,

Bathurst :

Shall write to-morrow about Elm Tree Bridge. To where shall I address letter ?

(Signed)

M. SMITH.

[346a.]

DALHOUSIE, 31st May, 1871.

MY DEAR SIR,—I have got a telegram to start for Ottawa to-day, so you will have to telegraph the quantities in the monthly estimates direct to the Chief at Ottawa. The contractors have been complaining of the estimates generally. Be careful that you give them no just cause. I think you had better measure and return all the cut stone, keeping a memorandum of all the localities where it is lying, then I shall see the Commissioners themselves, and ask what is to be done about it.

I sent you a few days ago a memorandum relating to dimensions, &c., of abutments and piers for iron bridges.

There will be sent to you in a few days copies of the general plans for the several spans on your division. I see that for 100 feet does not differ from the plan you have got, so there is nothing amiss yet.

I think you had better keep the monthly certificates till I telegraph you from Ottawa where to send them.

Yours truly,
(Signed,)

M. SMITH.

P. A. PETERSON, Esq.,
Division N.

[346b.]

DALHOUSIE, 31st May, 1871.

MY DEAR SIR,—Herewith I send you plan of foundation of abutments at Elm Tree River; the elevation and sections will be sent in a day or two. The span is to be 80 feet, with short abutments. I send you herewith a tracing of section of valley, shewing the position of abutments as near as I can determine them here, but you will use your judgment and put them so as the slopes will be least in the way of the water at flood. I have made the slopes 1 to 1, supposing them to be all of rock. That part of the slopes in front of the face of the abutments should be large stones, and well laid by hand, in fact good rip-rap or dry masonry.

You will get the foundations on the rock, and have as little stepping as you can help, as it is really more costly to the contractor.

Please let the contractor see your plan till a copy can be made for him.

Be very careful in your measurements, and as liberal as you safely can; so as to give them no cause of complaint.

I am just starting for Ottawa; don't know when I return, but probably about the 17th at Dalhousie.

Yours most truly,
(Signed,)

M. SMITH.

CHARLES ODELL, Esq.,
Division M.

(847)

DALHOUSIE, 29th May, 1871.

To W. J. FORREST,

Chief Engineer's Office,

Intercolonial Railway :

6270 Contractors want to begin abutments Elm Tree River. According to new plans, even rock slopes at one to one, will contract water-way too much. Shall I put in two spans of 60, or of 50, or one of 80? Your letter not received; will come to Ottawa if required, but this is measuring-up week, and no steamer. Will next week do?

(Signed)

M. SMITH.

(848)

DALHOUSIE, 30th May, 1871.

To SANDFORD FLEMING,

Ottawa :

If you settle Elm Tree Bridge at once, I could leave to-morrow and catch the up steamer at Father Point; monthly measurements could be sent to you direct.

6280

(Signed)

M. SMITH.

(849)

DALHOUSIE, 30th May, 1871.

To CHAS. ODELL,

Bathurst :

I leave for Ottawa to-morrow; shall send drawing for Elm Tree Bridge by next mail.

(Signed)

M. SMITH.

(850)

BATHURST, 1st June, 1871.

P. A. PETERSON, Esq., C. E. :

SIR,—We beg to ask of you to lay out the foundation of first abutment on west side of Middle River,—and much oblige

6290

Yours obediently,

(Signed)

J. B. BERTRAND & Co.

(J. McGinly).

(Copy.)

DIVISION M—INTERCOLONIAL RAILWAY,

ENGINEERS OFFICE, RESTIGOUCHE DISTRICT,

BATHURST, 8th June, 1871.

(851)

MARCUS SMITH, Esq.,

District Engineer :

6300

MY DEAR SIR,—I have this day telegraphed the quantities for the May progress returns to the Chief Engineer, as instructed by your letter of the 31st ult. I have always

instructed my assistants to be liberal in their measurements, and since McConnell left, I have personally superintended the monthly measurements on the Eastern Sub-Division of the contract, and I am confident that the returns over the whole contract are correct—and *should there be any error, I think on close measurement it would turn out that the contractors have been very liberally dealt with.*

The return this month is very small, but the fact is their force has been greatly reduced, and those that have been at work were chiefly employed in taking out the bottoms in some of the cuttings, clearing out ditches and other pottering works, arising from the
 6310 scarcity of horses (as the contractors have none of their own on the work), and are dependent on the farmers, who at this season took them off to do their spring farm work.

I remain, yours very truly,

(Signed)

CHAS. ODELL.

P.S.—Average weekly force at grading for the past month as follows :

F. men,	Smith's.	Laborers.	Boys.	Horses.
76	51	770	89	95
				C. O.

(852)

DALHOUSIE, 4th June, 1871.

SANDFORD FLEMING, Esq.,

6320

Chief Engineer, Intercolonial Railway,

Ottawa :

DEAR SIR,—As this is the busy season of the year with the farmer, our Railway Works are stripped of labour ; as a consequence, very little is being done upon any portion of the line, more especially on the Miramichi and Baie Chaleur, where the population is for the most part engaged Salmon Fishing, and putting in their seeds ; a large body of stone-cutters are employed upon Sections 3, 6, 9 and 15, probably twice as many as are engaged upon any other four sections upon the line. I have as instructed, been making close measurements of Section No. 3 ; so far I find the Monthly Returns to be a true and correct statement of the *actual* amount of work done, but, taken in connection with the Bill of Works and
 6330 certain modifications in the work, I cannot find that it gives a correct proportion of the whole contract, and I think it will be found the contractors of No. 8 are entitled to something over \$12,000 more than the May Return shows. I have asked some questions both by letter and telegraph within the last few weeks, but as I received no reply, I conclude you approved, and have acted accordingly, and hoping to see you down here within the next few weeks.

I am, yours truly,

COLLINGWOOD SCHREIBER.

(853)

DALHOUSIE, 4th June, 1871.

C. J. BRYDGES, Esq.,

6340

Montreal :

MY DEAR SIR,—I now address you in accordance with your wish expressed by telegraph. Since arriving upon Messrs. Bertrand & Berlinguet's work, I have visited all their



quarries, which with one exception, are very good, yielding excellent building stone, which is there to be had in abundance; it is however, not being produced in such quantities as could be desired, great difficulty being experienced just now in procuring laboring men, the local labour, upon which the contract largely depends, being either engaged putting in their crops or killing salmon. For the same reason it is equally difficult to procure teams for stone hauling. On this account very little work is just now being done upon these Sections, or indeed upon any part of the line; but I hope, and the contractors promise, so soon as the seeding season is over, they will at once gather their forces about them, and go to work in good earnest. Stone-cutters and masons are more numerous upon Messrs. Bertrand and Berlinguet's work than upon any portion of the line; they are for the most part employed preparing stone at the quarries. With a view of giving them material to haul, it has been necessary to draw all the labour from the earthwork, and apply it to the quarries, and even so, it is difficult to supply the cutters. I have measured the work done and material delivered upon Contract No. 8, and find the Monthly Returns truly and correctly represent the *actual* quantity of work done and material delivered, but taken in relation with the Bill of Works, it does not appear to me to represent a just proportion of the whole work. According to my Return, the contractors are entitled to from \$12,000 to \$14,000 more than the May Return shows. I say from a certain figure for the simple reason that I have not the schedule of prices by which the contracts are paid, and therefore cannot arrive at the exact amount. I should mention, this result is partially due to certain modifications in the Bill of Works, which I have applied, and which I am convinced the Chief Engineer will approve. I have my Returns made up in detail, in as clear and comprehensive a form as possible, so that it may be readily criticized.

I am, yours truly,

COLLINGWOOD SCHREIBER.

(858)

OTTAWA, 7th June, 1871.

The Commissioners appointed to construct the Intercolonial Railway, beg to submit to the Governor in Council the accompanying schedules of prices to be paid to the several contractors on the Intercolonial Railway, and to recommend the adoption of these schedules in substitution for those appointed by Council order of date, 24th May, 1871.

The rates in these schedules are arrived at by applying the contract sum to the total quantities, as now ascertained, of the work to be executed on the several contracts.

The item "bridge superstructure" will not at any time be returned as work done, and the amount thereof will therefore be deducted in the end from the lump sum to be paid to the respective contractors.

(Signed)

A. WALSH,
C. J. BRYDGES,

6380

(854)

BATHURST, June 12th, 1871.

P. A. PETERSON, Esq., C. E.:

SIR,—Would you please to lay out the fencing across the farm of the Hon. J. Ferguson, as we wish to construct it immediately.

We are, yours respectfully,

(Signed) J. B. BERTRAND & CO.,

Per J. W. McG.

(355)

6390 Copy of a Report of a Committee of the Hon. the Privy Council, approved by His Excellency the Governor-General in Council, on the 18th June, 1871.

On a memo, dated 7th June, 1871, from the Commissioners appointed to construct the Intercolonial Railway, submitting the schedules of prices to be paid to the several contractors on the Intercolonial Railway, and recommending the adoption of these schedules for the present, in substitution for those adopted by O. C. of date 24th May, 1871.

The rates in these schedules they state are arrived at by applying the contract lump sum to the total quantities (as now ascertained) of the work to be executed on the several contracts.

That the item "bridge superstructure" will not at any time be returned as work done, and the amount thereof will therefore be deducted in the end from the lump sum to be 6400 paid to the respective contractors.

The Committee, on the recommendation of the Hon. the Minister of Public Works, advise that the schedules be adopted and substituted for those approved by the O. C. referred to.

Certified.

(Signed.)

WM. H. LEE,

To the Commissioners, Intercolonial Railway.

Clk. P. C.

(356)

OTTAWA, June 20th, 1871.

MESSRS. J. B & F. X. BERTRAND,

Bathurst:

6410 GENTLEMEN,—It has been deemed desirable to put through approximate *June* estimates this month before closing of fiscal year.

The approx. Est. for No. 9 Section is \$5,000 gross, and for No. 15 \$8,000 gross. These will be credited in June against the advances of \$10,000 and \$10,000 now made.

On the 8rd July application will be made for warrants, \$4,500
7,200

\$11,700

which will be handed to your attorney as usual.

I am, Gentlemen,

Your most obt. servt.,

6420

(Signed)

C. S. ROSS,



(158)

OTTAWA, 22nd June, 1871.

To COLLINGWOOD SCHREIBER, Moncton :

Revision of quantities on any section advisable whenever it will materially affect basis for certificates. It should, however, be done by District Engineer in charge. Please, therefore, confer with Smith on subject of your letter as soon as possible. Will be in Halifax end of next week.

SANDFORD FLEMING.

(859)

MADISCO, 24th June, 1871.

6430 CHAS. ODELL, Esq.,

Division Engineer,

I. T. C. R., Section 9 :

DEAR SIR,—Will you be kind enough to set culverts at Stations 864.50 and 1068, and set also retaining wall at By-road Bridge, Station 807. Your early attention to the above will greatly oblige,

Yours very respectfully,

(Signed)

J. B. BERTRAND & CO.

Per J. A. Turcotte.

(860)

BATHURST, June 26th, 1871.

6440 MARCUS SMITH, Esq. :

District Engineer,

Dalhousie :

MY DEAR SIR,—On the 18th I went over the posts on the Hon. John Ferguson's farm, and finding them nearly all under the specified size, told McGiriv, the contractor's agent, to have them removed. I now find they are using them ; not one in twenty is five inches at the small end ; some are about three inches, and very few four inches. They are putting the *small end* down, and pointing it so that the generality of the posts are this shape :

(Sketch.)

and of course are not at all firmly set in the ground, and much more liable to be lifted by the frost than if the large end were down. The foreman informed me that he was building the fence as it was built on the St. Lawrence District. I told him it made no difference how the fence was built there, and that here he must build it according to specification.

I enclose you copy of letter sent to contractors.

Yours very truly,

(Signed)

P. ALEX. PETERSON.



(861)

BATHURST, June 26th, 1871.

MESSRS. J. B. BERTRAND & Co.,
Contractors, Division N,

Bathurst :

6460

GENTLEMEN,—I have to inform you that the fence now being erected across the farm of the Hon. John Ferguson is not according to specification. You will see by clause No. 6 that the posts must not be less than five inches diameter at the small end, whereas nearly all that you have put in are less than 5 inches. I went over these posts on the 18th inst., and told your agent, Mr. McGinly, to have them removed off the ground. He said he knew they were too small, and that you did not intend to use them. I now find you have used them. You will therefore have to take up all that come under the specified size.

I am, Gentlemen,

Your obedient servant,

(Signed)

P. ALEX. PETERSON.

6470

(862)

MONCTON, 26th June, 1871.

SANDFORD FLEMING, Esq.,
Chief Engineer,
Intercolonial Railway,
Ottawa :

DEAR SIR,—Upon contracts 3, 6, 9 and 15 a large force of masons and stone-cutters are at work. Little or no earthwork is being done, it being difficult to procure a sufficient number of laborers to keep the masons supplied with stone ; indeed I may say if the masons did a good honest day's work, there are not nearly enough quarrymen to provide them with sufficient stone. The masons were, also, when I was upon the works a week or two ago, 6480 working to a great disadvantage for want of horses, the contractors stating it was utterly impossible to get them.

I am,

Yours truly,

COLLINGWOOD SCHREIBER.

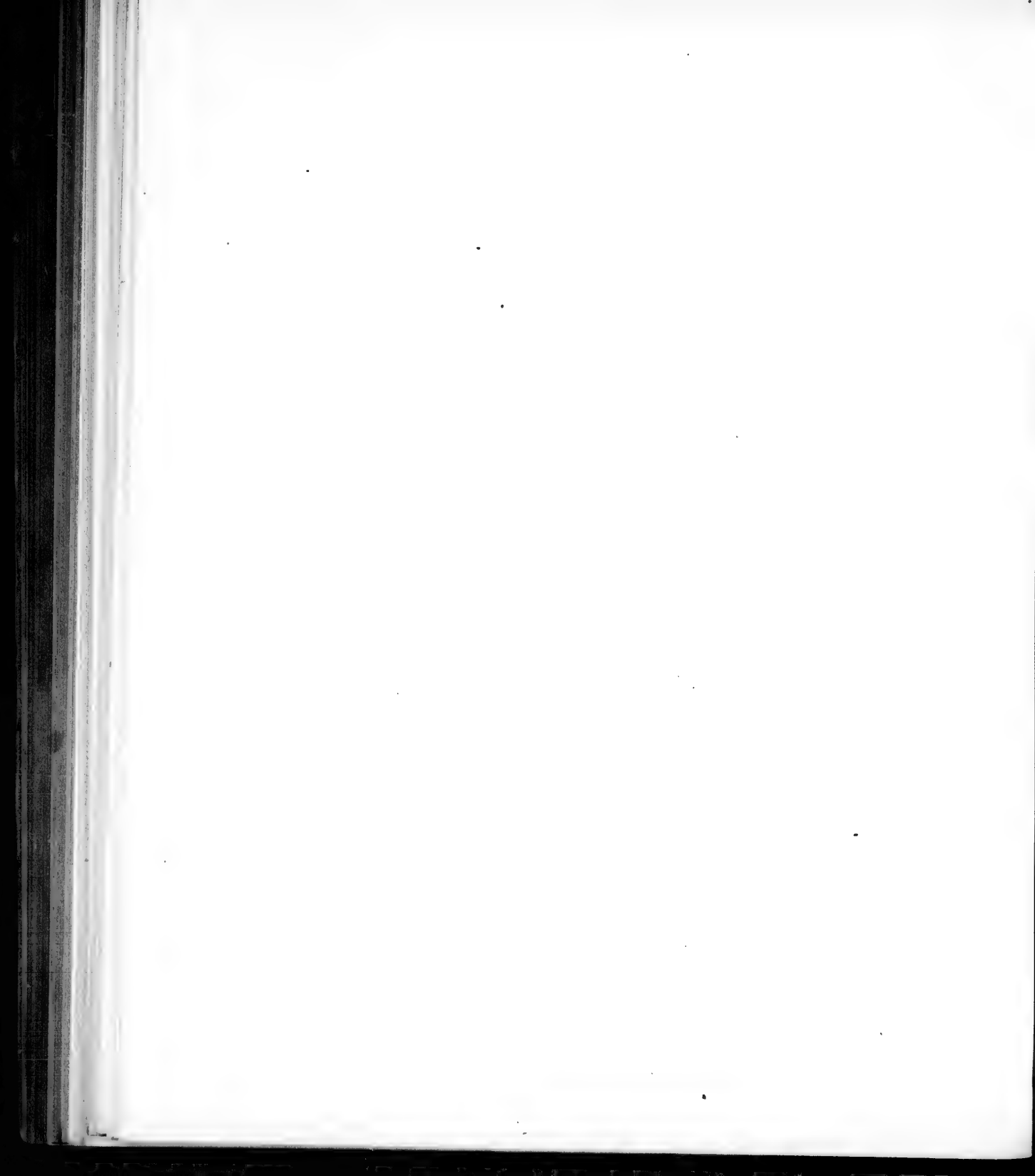
(868)

BATHURST, June 30th, 1871.

P. A. PETERSON, C. E. :

SIR,—Would you please to lay out the foundations of the different culverts at the following stations, viz. : At Station 349 and 50, 341 and 442.

Also the foundation of the abutment on the other side of Nipissiguit River, and also 6490 Little River bridge.



With regard to your note concerning fencing, we beg to say that we will pay particular attention to having it made properly.

We remain, Sir,

Your obedient servants,

(Signed)

J. B. BERTRAND & Co.

P.S.—The Little River first, if you please.

(864)

BATHURST, 80th June, 1871.

MARCUS SMITH, Esq.,

District Engineer.

6500

Dalhousie :

MY DEAR SIR,—I find that contractor has paid no attention to my letter of the 26th inst., with respect to fencing. He is still putting in the small pointed posts, digging his post holes about 2' 6", and driving the posts the remaining two feet. Some of his posts that measure 6" in diameter he splits, and as the grain is not straight the split faces are very crooked, and very far from being parallel. Some posts I found like this :

(Sketch).

one inch between the faces at one side, and five inches at the other side, and the small end invariably down.

Yours very truly,

6510

(Signed)

P. A. PETERSON.

(865)

MADISCO, 8rd July, 1871.

CHAS. ODELL, Esq.,

Division Engineer,

I. T. C. R., Section No. 9 :

DEAR SIR,—Will you be kind enough to set culvert at Station 1088, and oblige,

Yours very respectfully,

(Signed)

J. B. BERTRAND & CO.

Per J. A. Turcotte.

(866)

MADISCO, 4 Juillet, 1871.

6520 MARCUS SMITH, Ecr.,

Ingénieur du District de Restigouche :

MONSIEUR,—J'ai reçu votre lettre du 1er de juillet, laquelle m'a bien surpris, car je ne crois pas avoir agi de manière à m'attirer ces duretés

Je n'ai reçu la lettre de M. Peterson que le 1er juillet ; samedi et lundi je suis allé voir mon homme qui me dit avoir répondu à M. Peterson qu'il changerait les piquets que M.

Peterson trouvait trop petits et le reste :—.....quand vous descendrez, j'espère que vous trouverez tout à votre satisfaction.

6530 Me feriez-vous la faveur de m'accorder de bâtir une double box culvert à la Station 148, sur la section No. 9 à la place de l'arche ; nous avons de la bonne et grosse pierre tout prêt ; nous sommes à creuser les fondations, et une réponse favorable obligerait,

Votre serviteur,

J. B. BERTRAND.

(867)

MADISCO, 5 juillet, 1871.

P. A. PETERSON, Ecr.,

Ingénieur de Division :

MONSIEUR,—Vous allez écrire à M. Smith, Ingénieur de District vous plaignant que je m'obstine contre vos ordres, etc., et cela quand vous savez bien que je n'en sais rien du tout.

6540 Si vous voulez prendre la peine de réfléchir un peu, vous verrez si c'est la conduite d'un homme de votre position, et j'espère, monsieur, que si vous trouvez quelques déféctuosités dans les ouvrages, vous aurez la bonté d'attendre ma réponse avant de porter plainte.

V. O. S.

J. B. BERTRAND & C^{re}.

(868)

BATHURST, July, 8th 1871.

P. A. PETERSON, Esq., C. E.

Bathurst :

DEAR SIR,—Will you please allow me to change the arch culvert at Station 849+50 into a box culvert; also arch culvert at Station 884+50 into treble box culvert, as we find it difficult to get stone to suit the arch.

6550 If you would kindly allow us to make this change, please let us have the plan for 849+50 soon as possible, and you will much oblige,

Your most obt. servts.,

(Signed)

J. B. BERTRAND & CO.,

Per B. Bullick.

(869)

MADISCO, 14th, July, 1871.

CHSA. ODELL, Esq.,

Division Engineer,

I. T. C. R., Section 9:

6560 DEAR SIR,—Will you be kind enough to set culvert Station 707 at your earliest convenience as we are near ready to commence at it. We beg to inform you that the foundation of the abutment of Elm Tree is ready for your examination when convenient.

Yours very respectfully,

(Signed)

J. B. BERTRAND & CO.,

Per J. A. Turcotte.



[368a.]

DALHOUSIE, 29th June, 1871.

MY DEAR SIR,—I have received your letter of the 24th inst. with drawings of bridge for Middle River. Herewith I send you an extract from a letter from Mr. Forrest relating to dimensions of bridges, which will guide you. I also return your letter with pencil notes on the same relative to the covering.

Yours truly,
(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
Division N.

[368b.]

DALHOUSIE, 1st July, 1871.

SIRS,—The Engineer in charge reports that you persist in putting in fence posts and rails of less size than required by the specifications, and that many of the posts are put in the small end down, and driven into the ground like a stake, despite the warning given to you in his letter of the 26th.

You are acting very foolishly and wasting both time and money, as no inferior work can be allowed on any consideration, and surely fencing is a very simple thing, that any man of ordinary capacity can understand. I shall be down in a few days, and hope to find the inferior work removed, and that all your works are progressing satisfactorily.

I am, sirs,

Your obedient servant
(Signed,) M. SMITH,
District Engineer.

J. B. BERTRAND & Co.,
Contractors Section No. 15.

[368c.]

DALHOUSIE, 1st July, 1872.

MY DEAR SIR,—I have sent Mr. W. Jamieson, Inspector of Masonry, to Belledune, to wait instructions from you. The Secretary says he is appointed to Section 15, but that must be a mistake, as I have not heard of Fotheringham's leaving. I shall be down next week and enquire into the matter. Meantime, Mr. Jamieson will go on No. 9, and you had better bring Fotheringham out to show Jamieson over the line, and what kind of work we require.

Yours most truly,
(Signed,) M. SMITH.

CHAS. ODELL, Esq.,
Division M.



[368d.]

DALHOUSIE, 1st July, 1871.

MY DEAR SIR,—The bearer, Mr. W. Jamieson, is appointed Inspector of masonry on Section No. 15—so says the Secretary, but I suppose it is a mistake, as I have not heard anything of Fotheringham's leaving, and they must have supposed that he was on No. 9. However this may be, Mr. Jamieson had better go on No. 9, at present, and it would be well if you brought Fotheringham out for a day or two to show Jamieson the kind of work we require.

Yours truly,

(Signed,) M. SMITH.

P. A. PETERSON, Esq.,

Division N.

P. S.—I send him to Belledune.

(Signed,) M. S.

[368e.]

DALHOUSIE, 6th July, 1871.

MY DEAR SIR,—I meet the Chief Engineer at Truro on Monday next, and shall reach Bathurst about the 13th inst. I wish you to have ready anything that requires the Chief's attention, and also to have ready an approximate schedule of revised quantities arising from alterations in culverts, changes of grade or other causes, as we shall probably make a new schedule of rates for certificates. That crossing of Ferguson's, of course, is not settled, but you can get ready the cost of a level crossing with cattle guards.

Yours truly,

(Signed,) M. SMITH.

P. A. PETERSON, Esq.,

Division N.

[368f.]

DALHOUSIE, 6th July, 1871.

MY DEAR SIR,—I meet the Chief Engineer at Truro on Monday next to go over the line with him, and we shall probably reach Bathurst about the 13th inst. I wish you to have ready any matter that requires the Chief's attention, and also to make out an approximate schedule of quantities, changed by omissions of culverts found unnecessary, or by a change in their form or size; also earthwork quantities, altered by change of grade or other causes, as we shall probably make out a new schedule of prices for certificates. I send by book post a table for getting out culvert quantities.

Yours most truly,

(Signed,) M. SMITH.

CHAS. ODELL, Esq.,

Division M.



(870)

To the Commissioners Intercolonial Railway, &c., &c.

Copy of a Report of a Committee of the Hon., the Privy Council, approved by His Excellency the Governor-General in Council, on the 27th July, 1871.

On a memorandum, dated 27th July 1871, from the Hon., the Minister of Public Works, recommending that in accordance with the report of Sandford Fleming, Esq., Chief Engineer, the Intercolonial Railway Commission be authorized, if they think it in the interest of the public, to increase the schedule of prices paid to contractors on the railway sections in the Restigouche District to a uniform rate of 20 cents per cubic yard for earth-work, and \$1 per cubic yard for masonry, and that they be further authorized to take out of the hands of the contractors such portion or portions of Section No. 12, in the Province of Nova Scotia, as they may think necessary for the immediate and more vigorous prosecution of the work upon the said section.

The Commissioners will take care that such additions to the rates upon which the progress estimates are made up do not expose the Government to the risk of the gross contract price being exhausted before the work is completed.

The Committee submit the above recommendations for your Excellency's approval.

[Certified.]

(Signed)

W. R. LEE,
Clerk P. C.

(871)

BATHURST, 28th July, 1871.

MARCUS SMITH, Esq.,

District Engineer:

DEAR SIR,—Mr. Peterson this morning informed me of the letter he had received from you, regarding the *Masonry Inspectors*, and the *change of same*, from the tenor of which it would seem that the Chief Engineer was dissatisfied with Mr. Fotheringham as regards his management and superintendence of the work, and in fact casting a doubt upon his fitness for the position.

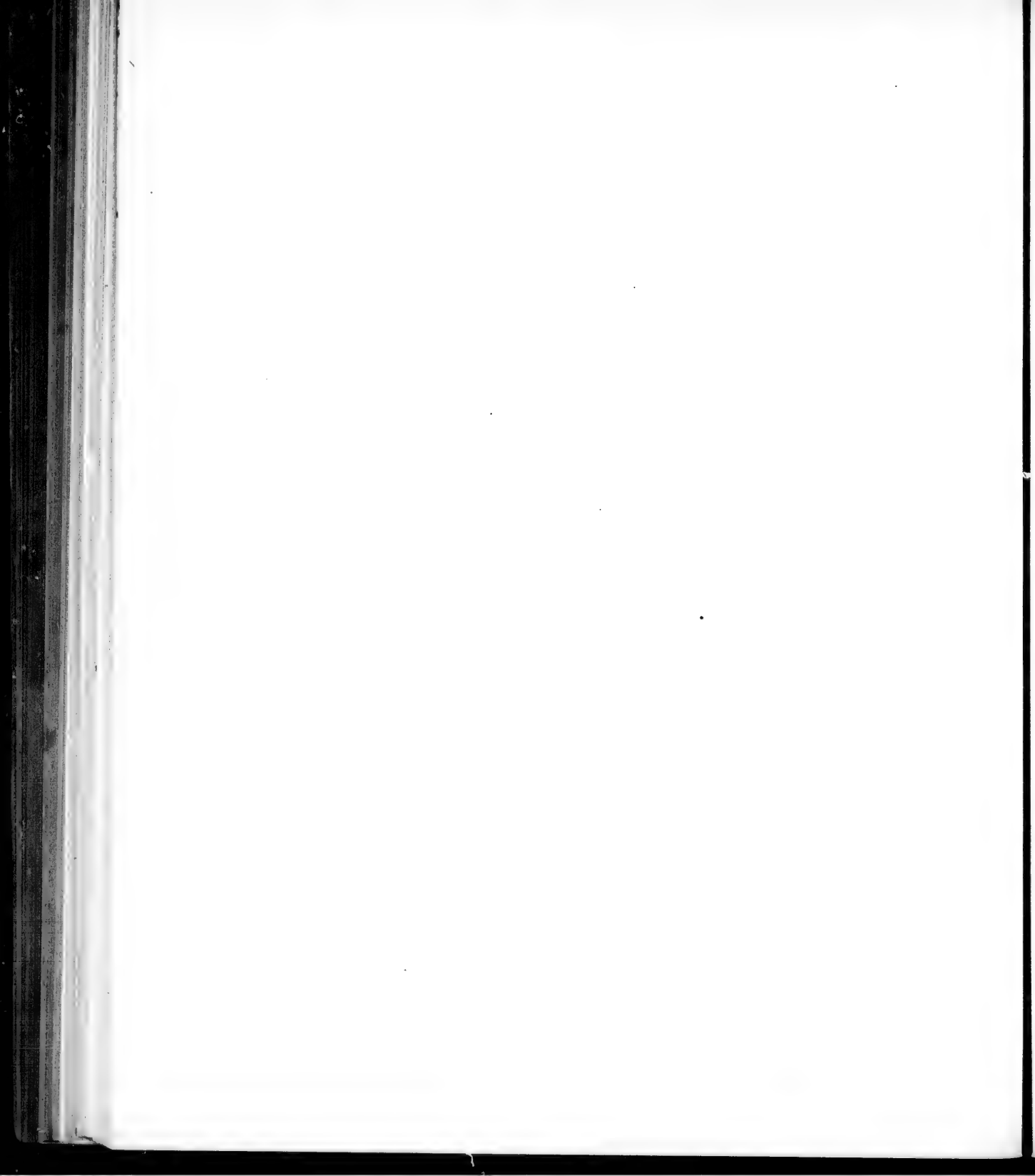
If such is the case, it appears strange to me that he should have been taken from No. 15 and immediately transferred to my division.

I have, since Mr. Jamieson arrived, taken a good deal of pains to post him up in what was required, and as to the manner in which I wish the work generally done; and it does seem *unfair*, now when he has got things in good training, that I should be deprived of him. As regards Mr. Fotheringham when he had the joint superintendence of my division, in connection with No. 15, I had no complaint or fault to find with him; and as to the qualifications of the two men, I am inclined to think Mr. Fotheringham (from what I have heard of *their antecedents*) has more practical knowledge of his work; still, could it be so arranged, I would prefer that Mr. Jamieson be left with me.

Yours truly,

(Signed),

CHAS. ODELL.



(872)

BATHURST, Aug. 8. 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

6610 MY DEAR SIR,—The contractor wishes to be allowed to put in the beam culvert at 551, according to general plan on sheet No. 22 instead of according to that on sheet No. 11. He wishes for this change because he has no stone on the ground suitable for the stepped coping. The height from top of paving to foundation is only 11 feet, and the plan on sheet No. 22 is for heights over 12 feet, so that if four feet walls are built and the length is made equal to the height, the plan will be like this :

(Sketch.)

two four feet walls and a three feet space, and this with the retaining walls will require considerable more masonry than the plan on sheet No. 11. The contractor is aware of this, but still prefers the plan on sheet No. 22. Will you telegraph me to-morrow if he may put it in, and what length I shall make it.

6620

Yours very truly,

P. ALEX. PETERSON.

(873)

MONTREAL TELEGRAPH COMPANY.

DALHOUSIE, 7th August 1871.

To P. A. PETERSON,

Bathurst :

On written request of contractors, culvert at Station 551 may be built according to sheet No. 22 ; but it should be 12 feet long, viz., 2 walls 4 feet each, with 4 feet space between.

(Signed)

M. SMITH.

6630

(874)

MADISCO, 7th August, 1871.

CHAS. ODELL, Esq.,

Engineer, Section 9,

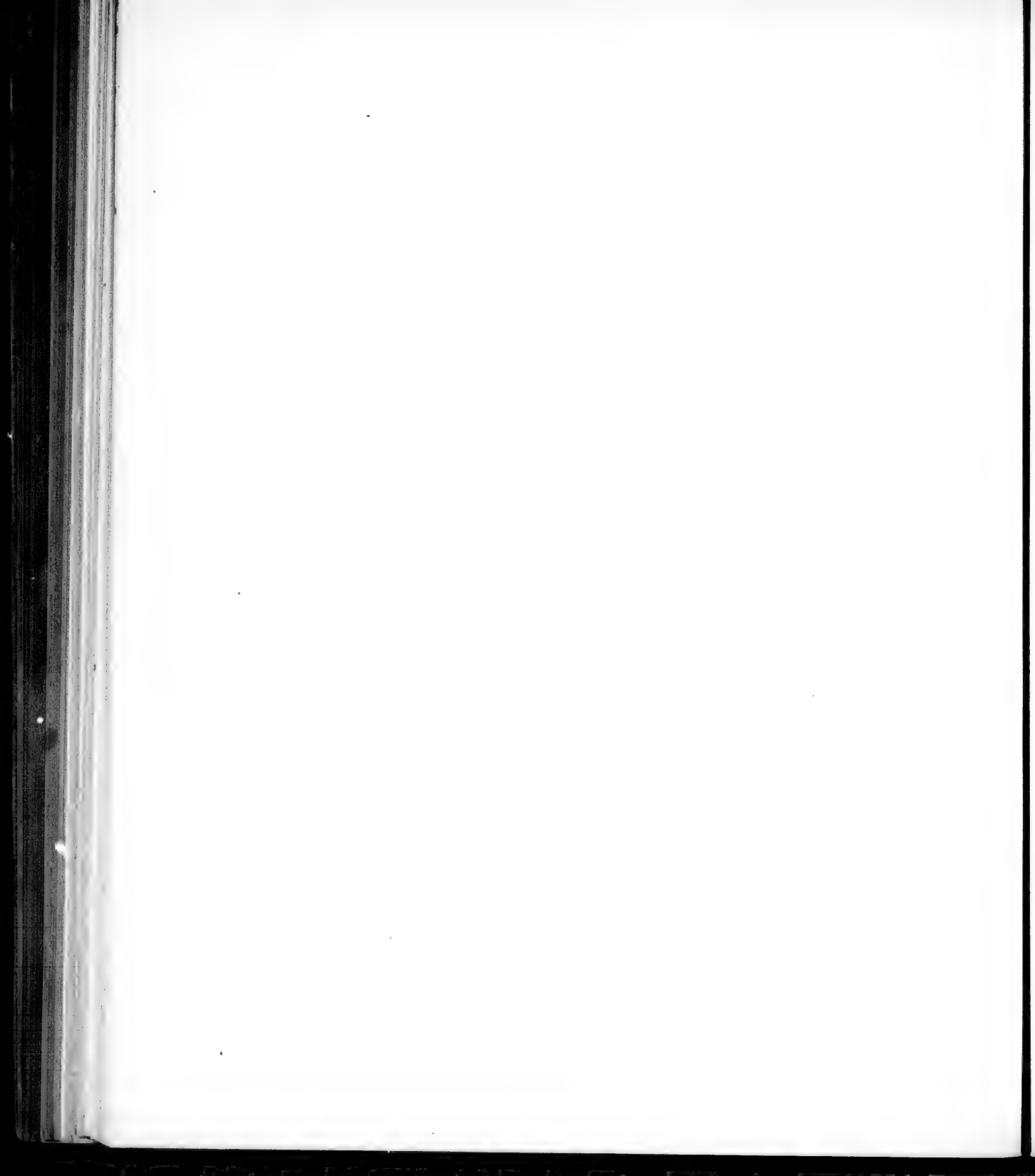
Bathurst :

DEAR SIR,—Will you please allow us to build . ation 80+50, a double box culvert instead of an eight feet arch. We have splendid stones of almost any dimension you may think proper to use for covers. By so doing you will oblige us very much.

Yours very truly,

J. B. BERTRAND & Co.,

Per J. A. Turcotte.



6640 (875)

BATHURST, 7th August, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—I have been out to examine the foundation of the *beam culvert* at 551 and find it a soft black sand at a depth of six feet from the surface, and no appearance of anything better as far down as it can be tested with a crowbar. I told the contractor who was with me that he would have to put in a timber and concrete foundation similar to that put in at 435, whatever cross timbers were put in 3' from centre to centre and the longitudinal 2' from centre to centre, as timber is plentiful at 551 and the materials for making concrete.

6650 He wishes to put the timber as close as it can be laid and only to fill the spaces with concrete or cement. I told him this would do, so the plan proposed is like this :—

(Sketch.)

making the structure after the General Plan Sheet No. 11. This I think is the better plan, as the retaining walls in Plan Sheet No. 22 would not stand unless built on a timber foundation, like the body of the structure. I suppose the steps may have every other one in two pieces, and that as long as the slope line is correct, the steps need not be all of the same thickness.

Yours very truly,

(Signed)

P. ALEX. PETERSON.

6660 (876)

BATHURST, 8th Aug., 1871.

MARCUS SMITH, Esq.

MY DEAR SIR,—I have just received a letter from Messrs. Bertrand & Co., asking permission to change the 8 foot arch at Station 80+50 to a double box. They propose using the stone from the line quarry for it. Will you please inform me as early as possible your decision in the matter.

If you have any forms of specification in the office, I wish you would send me down a couple.

Yours very truly,

(Signed)

CHAS. ODELL.

6670 (877)

BATHURST, 9th August, 1871.

CHAS. ODELL, Esq.,

Bathurst District Engineer :

DEAR SIR,—We beg to inform you that Thursday will do for the tunnel at Armstrong's Brook.

Yours truly,

(Signed)

J. B. BERTRAND & CO.,
per C. H. Mann.



(378)

DALHOUSIE, 9th August, 1871.

P. A. PETERSON, Esq.,

6680

Division N

MY DEAR SIR,—I have received your favor of the 7th, with sketch of proposed plan of foundation for culvert at station 551, which will do very well, except that the timbers should not touch, but should be at least 2" to 3" apart to allow concrete to be rammed in between them. Also, the steps (or coping of wings) should be nearly of uniform thickness, and not much exceed 1' in thickness, and they must be in *one* piece; the Chief was very angry at some on Section 9, being in two pieces; they may be in any kind of sound durable stone.

Yours truly,

(Signed)

M. SMITH.

6690

(379)

DALHOUSIE, 11th Aug., 1871.

CHARLES ODELL, Esq.,

Division M:

MY DEAR SIR,—I have received your favor of the 8th inst., stating that Messrs. Bertrand & Co. wish permission to change the structure at Brown's Brook, Station 80+50, from an eight feet arch to a double box culvert, as was done at Station 163. I have received a letter from Messrs. Bertrand to the same effect.

I should be glad to accommodate as far as practicable the design of the structures to suit the stone in the vicinity, but I am very doubtful whether in this case the design can be altered, as I find on reference to the stream books that this is a much more formidable stream than the other, having twice the width and nearly double the sec. area. Both were put down as 8 ft. arch culverts, but in the other case this was fully large—a 6 feet might possibly have been large enough; in the present case 8 feet is verging rather closely on being too small. You will, therefore, consider that the design remains unaltered; but I shall be down next week and see if any advantage can be obtained by changing it to a beam culvert or bridge. Please inform contractor of contents of this.

6700

Yours most truly,

(Signed)

M. SMITH.

(380)

BATHURST, 12th Aug., 1871.

M. SMITH, Esq.,

6710

Ingénieur du District de Restigouche:

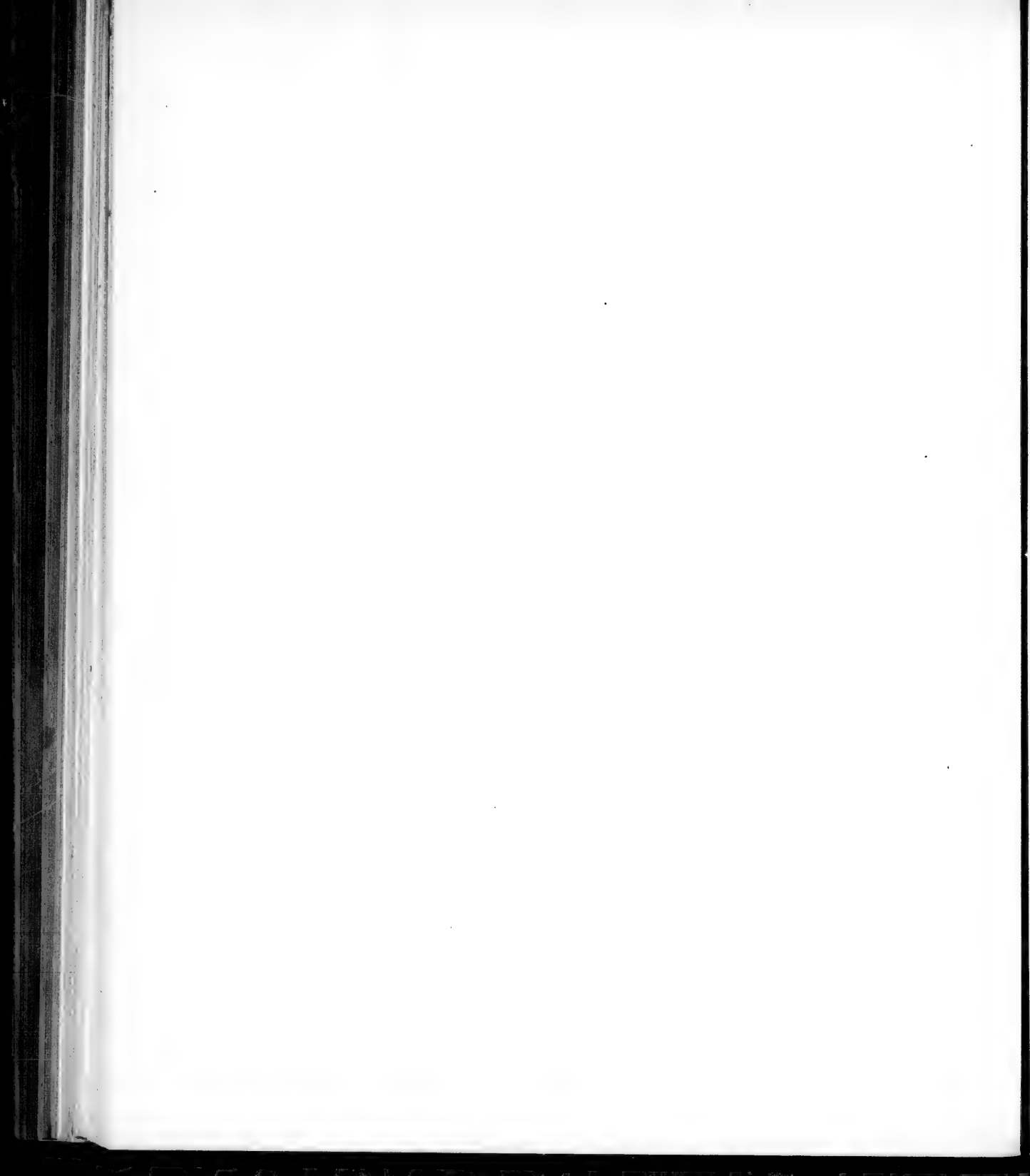
MONSIEUR:—Je me suis adressé à Mr. Odell pour obtenir le changement de l'arche culvert à Brown's Brook sur la Section No. 9. J'espère que vous consentirez à nous laisser bâtir une double box.

En faisant vous obligerez,

Vos serviteurs,

(Signé)

J. B. BERTRAND & CO.



(881)

MADISCO, 14th August, 1871.

To CHAS. ODELL, Esq.,

Division Engineer,

6720

I. T. C. R. Section 2:

DEAR SIR,—Will you be kind enough to set culverts Stations 900, 984 and 1,074. Also foundation of Nigadoo Bridge and cattle guards Stations 870 and 900 and oblige.

(Signed)

J. B. BERTRAND & CO.

per J. A. Turcotte.

(882)

BATHURST, 17th August, 1871.

MARCUS SMITH, Esq.:

MY DEAR SIR,—The contractors have applied to have the foundations of the Nigadoo Bridge set out. Will you please let me have a sketch or trace of it, and also the position as near as you can from the data already furnished.

6730

Yours very truly,

(Signed)

CHARLES ODELL.

(883)

BATHURST, August 17th, 1871.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie:

MY DEAR SIR,—Would you please send me a rough sketch of the plan you wish the coping of the piers to be arranged. The foreman proposes to arrange the stone somewhat thus:

Sketch.

with a long vertical joint down the centre. I think the stones should be so arranged that
6740 the bearings of the girders would come upon the centre of one stone.

I would be glad if you could telegraph me to-morrow morning early how to arrange these stones, as the foreman wants to get them out at once. I would have written you yesterday about this but I was told by Mr. Bertrand that you were coming down, and Mr. Odell told me the same.

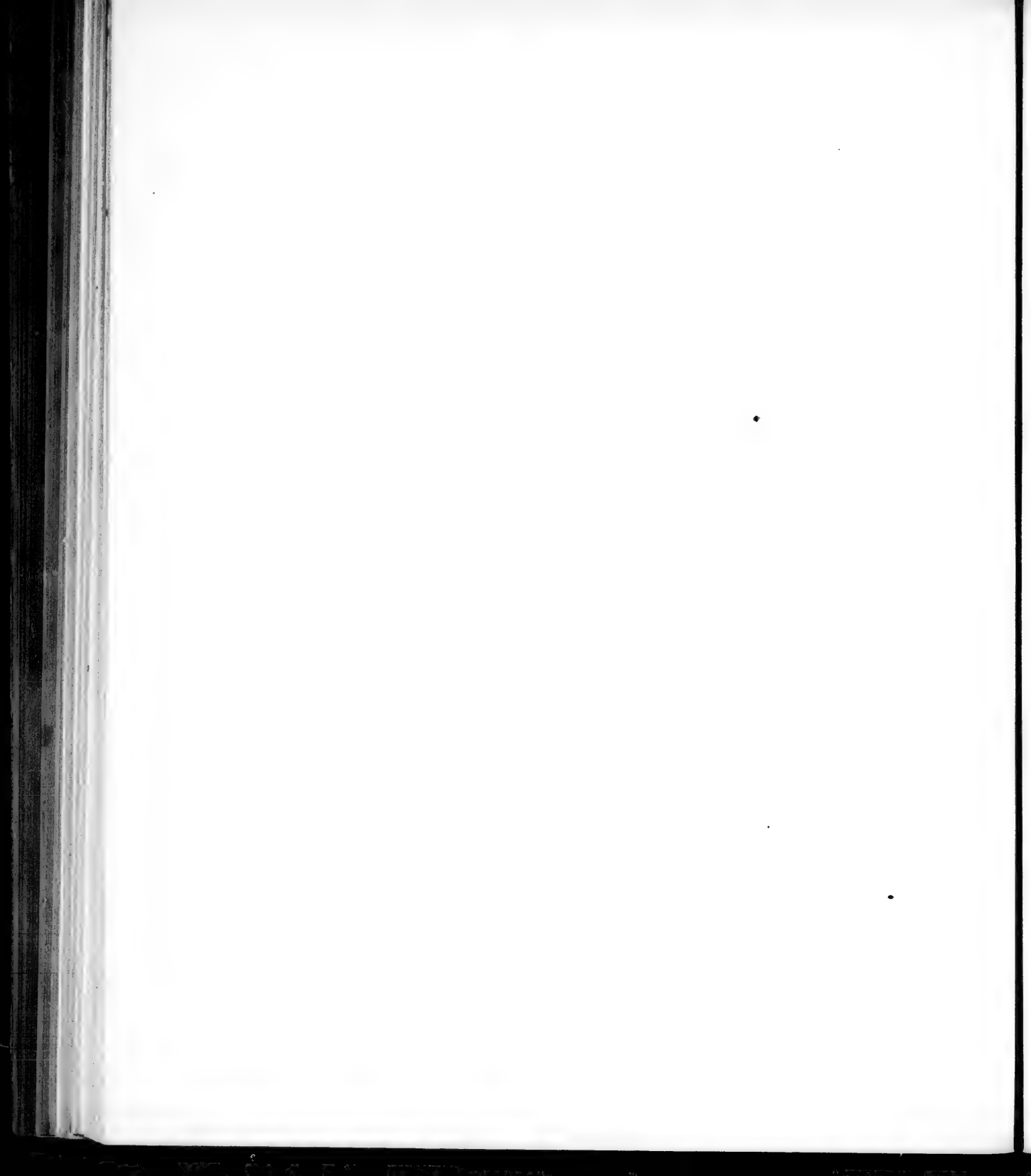
Yours very truly,

(Signed)

P. ALEX. PETERSON.

I find that on the pier of the Nipissiguit Bridge the cutwater has been finished with two courses 18" in thickness, and the foreman is now finishing the remainder with 21" courses. The first 21" course was nearly laid this morning when I visited the works, and
6750 I did not like to make him take it up and go on with 18" courses. I have repeatedly told him that in no case was a thin course to be laid under a thick course.

P. ALEX. P.



(884)

BATHURST, 17th Aug. 1871.

MARCUS SMITH, Esq.

Chief Engineer,

Dalhousie :

6760 MY DEAR SIR,—I have given the contractor a plan of the beam culvert at 551, of which the enclosed is the cross section. He complains that I make him go too far down, he says that in the general plan from the point where the paving commences beside the wall to the bottom is only 8' 3", whereas on my plan I make him put in 8' 0 of masonry and 15'-of timber. I told him I did not think it was down too deep, but that I would consult you about it.

Yours truly,

(Signed)

P. ALEX. PETERSON.

(885)

DALHOUSIE, 19th August, 1871.

P. A. PETERSON, Esq.,

Division N :

6770 MY DEAR SIR,—I have your two letters of the 17th inst. relative to the coping for the piers of the bridge over Nipissiguit. I return you that with the sketch which I think is the most suitable, but how did you get the distance from centre to centre of girders ? I have telegraphed Forrest to send it me for all the bridges from 40 to 100 feet span.

The stone for the girder beds according to the sketch will be very heavy, I fear heavier than they can well manage ; if so, I don't know that we can compel them to do more than shewn on the drawing sent from Ottawa which shews the stone for the girder bed in two pieces 3' 6" wide each, but he gives the end stones in one piece and 2' 6" wide. I prefer the plan according to your sketch if the contractors can do it.

Yours truly,

(Signed)

M. SMITH.

(886)

DALHOUSIE, 19th Aug., 1871.

6780 P. A. PETERSON, Esq.,

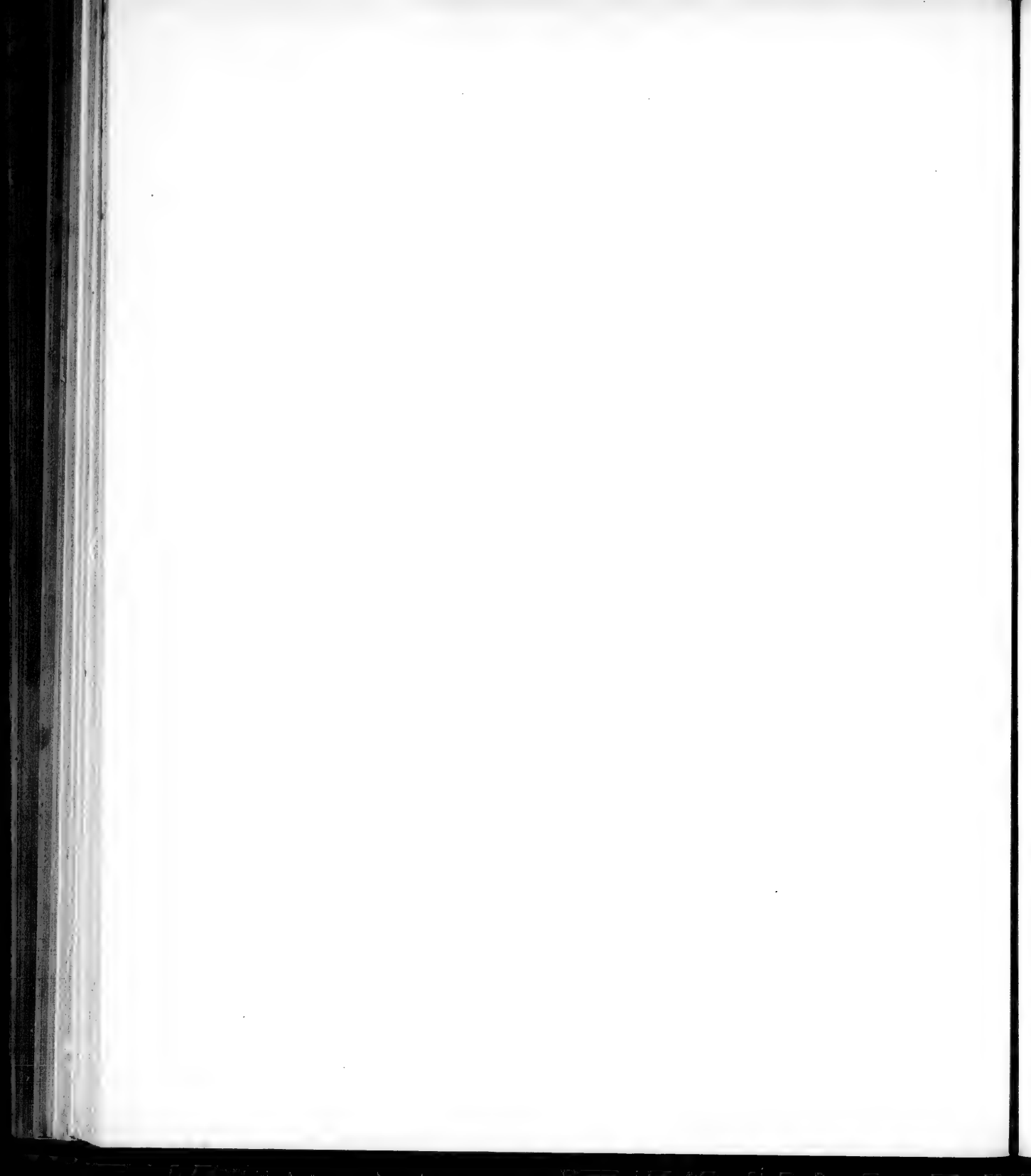
Division N :

MY DEAR SIR,—I have received your letter and tracing relative to the beam culvert at station 551 ; you have not put too much masonry in the foundations, in fact there is less than shewn on the general plan, and you will please inform the contractor that the timber in the foundations is not intended as a substitute for masonry, but only as a secure platform to build on.

Yours very truly,

(Signed)

M. SMITH.



(387)

DALHOUSIE, 21st August, 1871.

6790 SANDFORD FLEMING, Esq.,

Chief Engineer :

MY DEAR SIR,—

BELLEDUNE RIVER.—The contractors object to tunnel this, and I have sent them a plan of 2 spans of 60 feet each, the pier in the centre will be nearly 50 feet from foundations to top; one span of 120 feet, or possibly of less would almost rest on the rock at each end. I have sent you a tracing shewing section on centre line, and two parallel lines at the width of the bridge which will enable you to decide what is best to be done.

Yours most truly,

6800

(Signed)

M. SMITH.

(388)

DALHOUSIE, 21st August, 1871.

CHAS. ODELL, Esq.,

Division M :

MY DEAR SIR,—I have your favor of the 17th inst., stating that the contractors have applied to have the foundations of the Nigaloo Bridge set out. This is most vexatious. I have been twice down on Sec. 9 within the last three weeks, and it is just five days since I returned the last time, yet nothing was said about this bridge; the contractor, Mr. Bertrand, stating distinctly that he had nothing that he wished me to look at. I have had reason to complain often of these unreasonable demands for new works to be set out when they have

6810 had so many other works on hand unfinished, and lagging for want of stone or other materials. I am just off for the Metapedia Sections, and cannot possibly be back within ten days or a fortnight. You will please go to the Nigaloo and measure carefully the quantity of stone delivered on the spot, and take account of the courses, to see how many of them can be laid with the stone delivered. for I find generally the contractors have so little forethought that they commence work even where extensive pumping is required, without ever measuring the stones to ascertain if there is enough to go round any one course. You will also measure the stones (prepared in courses) at the quarries from which they intend to get the stones for this bridge, and write me an account of the same.

If you find that they really have enough of stone prepared in courses on the spot, or in

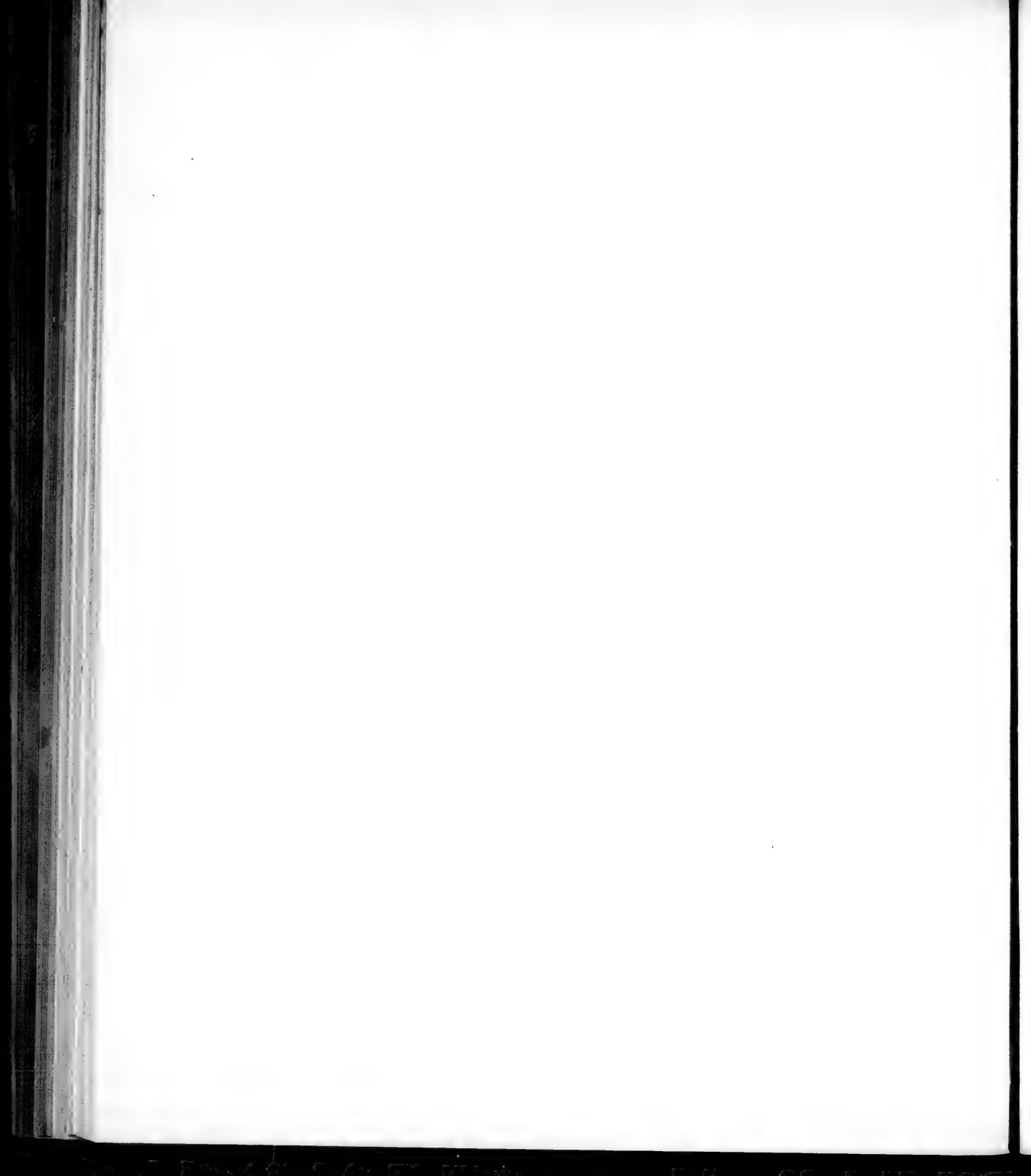
6820 the quarries near, to enable them to commence work and proceed with it regularly and systematically, according to clause 36 of the specification, then you may set the foundations out according to the best of your judgment. The plan will be exactly the same as that for the Elm Tree River, except in the height, and from the section of the river bed it appears that Station 1,000 + 75 would be the place for the face of the west abutment (neat masonry) and the span 80 feet clear. But if they are not ready to commence, it had better wait till I come down. Show this to the contractor, and ask him to be a little more considerate and bring these things before me when I visit his contracts, and not ask for *immediately* on my return home, and when I must necessarily visit other sections in my district.

Yours very truly,

6830

(Signed)

M. SMITH.



(389)

DALHOUSIE, 22nd August, 1871.

SANDFORD FLEMING, Esq.,

Chief Engineer :

MY DEAR SIR,—Since writing to you yesterday, I have had three parallel sections made of the crossing of the Belledune River, viz : One on the centre line of railway and on each side at 10 feet distance. A tracing of this I herewith enclose. The centre line is shown by a firm black line, and the sections by dotted lines, one *blue*, the other *red*. I find by these that the ravine can be crossed with one span of 100 feet, the abutments being of the prescribed length for iron bridges of that span, with this exception that a wing 10 feet long
6840 would have to be added to the north side of the west abutment.

But there is no advantage gained by this *one* span of 100 feet over *two* spans of 60 feet each, except in appearance. In fact, it is a little more costly. I find the quantities of masonry approximately as follows, viz. :

MASONRY.

2 spans of 60 feet.....	372 cubic yards.
1 " 100 feet.....	390 "

And the superstructure of one span of 100 feet will cost more than two spans of 60 feet. I suppose I had better let the contractors go on with the two spans of 60 feet, as the plan has been furnished them.

6850

Yours most truly,

(Signed)

M. SMITH.

(390)

BATHURST, August 24th, 1871.

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie :

MY DEAR SIR,—Some time ago I found the foreman at 441 building his walls with common lime. I told him he must stop it, as his stones were not fit to be laid save in cement—but that if he would put in his top course, on which the covers are laid all through stones as the specification calls for, that then he might use common lime—not otherwise. I found
6860 him again to-day using common lime for backing his first course of the walls, and stopped him. The Inspector informs me that common lime is being used in box culverts on No. 9, and he says the stones have no larger beds than those that we are using.

I do not think that common lime will make good work, and I would like to know if you are willing that it should be used. I have seen several chimnies pulled down here that have been laid with this country lime, and the bricks are lifted with one hand, as if there was no mortar between them. The Quebec lime may be better, but I think all the work under ground should be in cement, unless the stones are good enough to be laid dry.

Yours very truly,

P. ALEX. PETERSON.

6870 (391)

MADISCO, August 28th, 1871.

CHAS. ODELL, Esq.,

Division Engineer,

I. T. C. R., Sec. No. 9.

Belledune :

DEAR SIR,—Will you be kind enough to set Culverts Stations Nos. 698+54, 890 and 910. Our reasons for asking the above before others are completed, are on account of some changes, which have made us short of some dimension stones, and for which we will have to open a new quarry.

We would also ask you when convenient to give numbers of stations for farm crossings 6880 from Elm Tree River upwards. Trusting that above explanation will prove satisfactory,

We remain,

Yours very respectfully,

(Signed)

J. B. BERTRAND & CO.,

per J. A. Turcotte.

DALHOUSIE, 28th August, 1871.

(392)

(By Telegraph from Halifax).

To M. SMITH.

Referring to your letter of 22nd, two spans of 60 feet each will be ordered for Belledune River.

6890

(Signed)

S. FLEMING.

(393)

DALHOUSIE, 31st August, 1871.

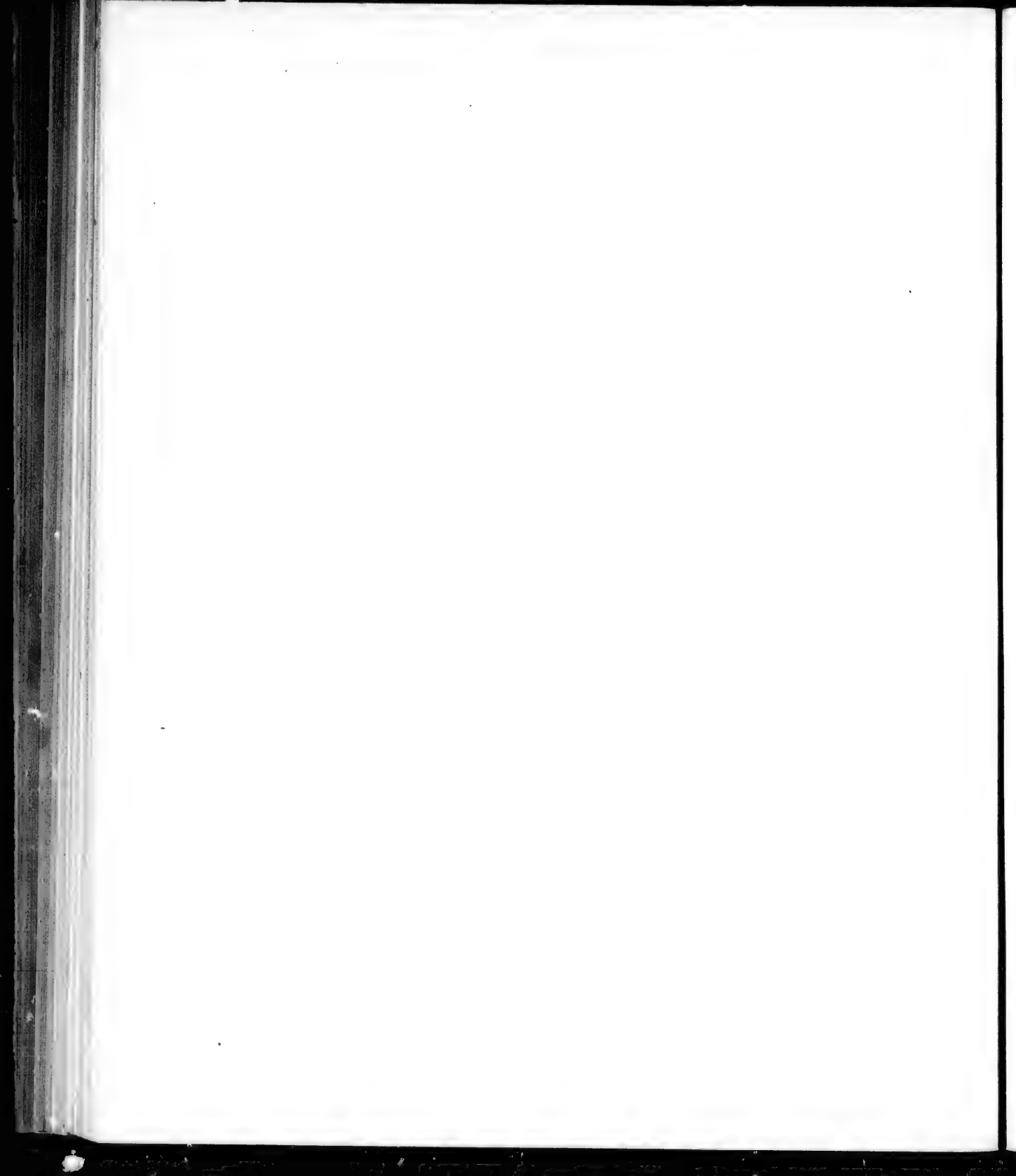
P. A. PETERSON, Esq., Division N :

MY DEAR SIR,—I have your letter of the 24th inst., from which I extract the following, viz. :—

“And the height from *rail* level to top of masonry on bridges, with railway between the girders, will be, for spans of 80 feet 3' 6" and for spans of 100 feet 3' 7".” The above is scarcely intelligible, but I suppose you mean by top of masonry the bridge seat, and the *height* from rail to the same should be the *depth* or distance below *rail* or *formation* level. For information on these points, I have to refer you to extracts from Mr. Forrest's letter to me of the 23rd May, 1871, sent to you on the 29th June, 1871, from which I find—

6900

The bridge seat for spans of 80 feet below formation level is..... 1' 6"
 “ “ 100 feet “ “ 1' 7"



Rail level is two feet above formation, which will make the above distances coincide with those in your letter. In other respects these bridges will be finished according to general drawings sheet No. 20.

Yours most truly,

(Signed)

M. SMITH.

BELLE DUNE, 1st September, 1871.

MARCUS SMITH, Esq.:

6910 My DEAR SIR,—I herewith enclose the monthly certificates for work done on my division up to 31st August. You will perceive they have done tolerably in the masonry compared to former returns.

I remain, yours very truly,

(Signed)

CHAS. ODELL.

(395)

DALHOUSIE

September 1871.

CHAS. ODELL, Esq., Division M:

My DEAR SIR,—I propose to continue the close inspection of the works in my district on Monday next. Expect to reach your division (say Armstrong's Brook), on Wednesday morning.

6920 Please to get yourself in trim to walk over your division with me. I find from experience on other divisions it will take two days to get over a division properly. I shall telegraph you from here should any change in programme take place.

Yours truly,

(Signed)

M. SMITH.

(396)

DALHOUSIE, 12th Sept., 1871.

To SANDFORD FLEMING, Esq.,

Halifax:

Length of spans will suit well, viz.:

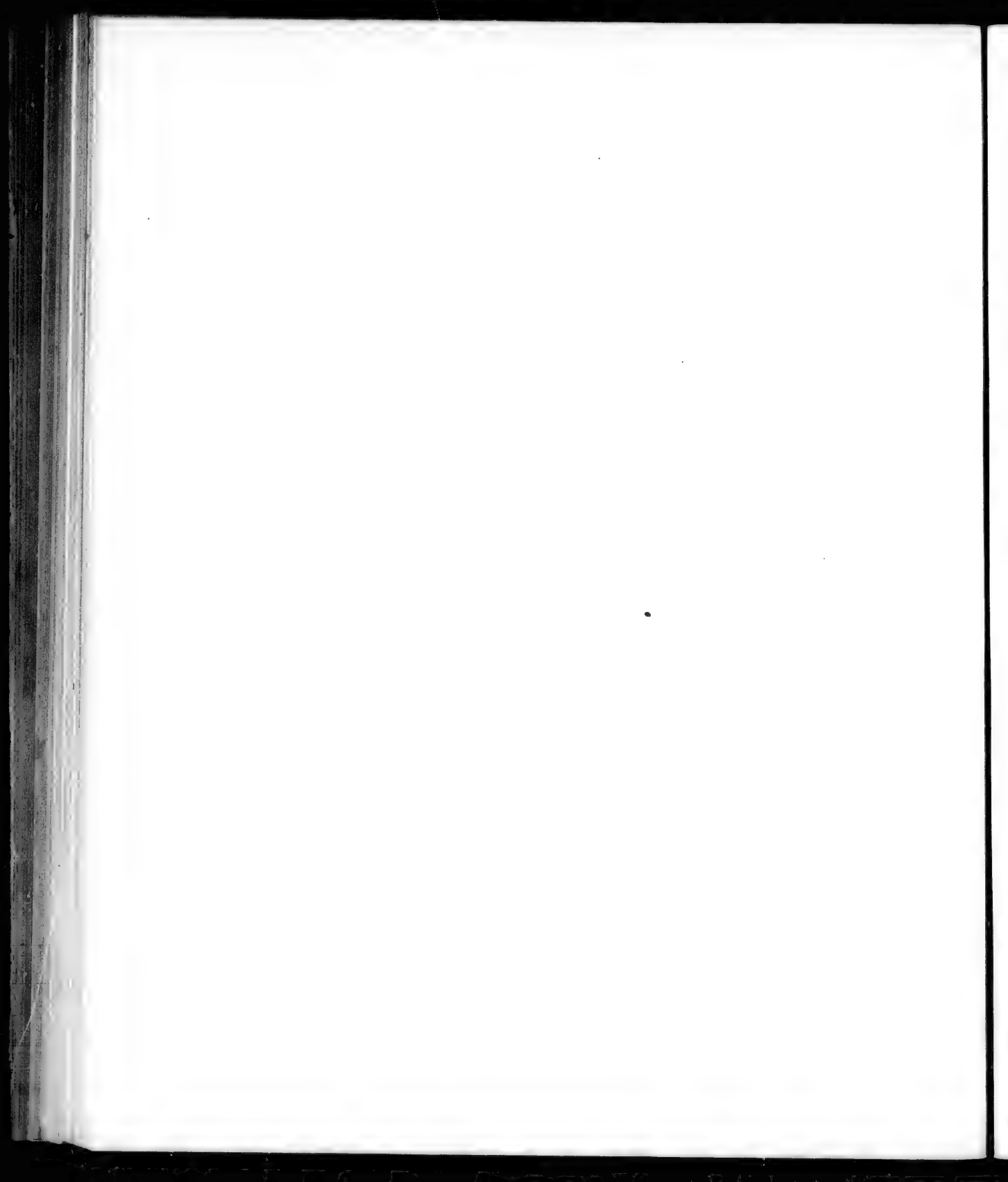
6930

Clark's	brook,	} 60 feet each.
Gilmour's	"	
Louison	"	

These I think should be deck bridges, Nash's Creek, 80 feet best as a through bridge one abutment at Little River was commenced according to schedule, viz., 1 span, 60 feet before I knew of it. I let it remain so, but lengthened wings to give clear water way 60 feet.

(Signed)

M. SMITH.



September 20th, 1871.

[402.]

By Telegraph from Bathurst,
To M. SMITH.

I will be at Jacquet River to-morrow at ten. I must commence there because I have to go to Dalhousie for the night.

(Signed,) J. B. BERTRAND.

[403.]

21st September, 1871.

MY DEAR SIR,—

* * * * *

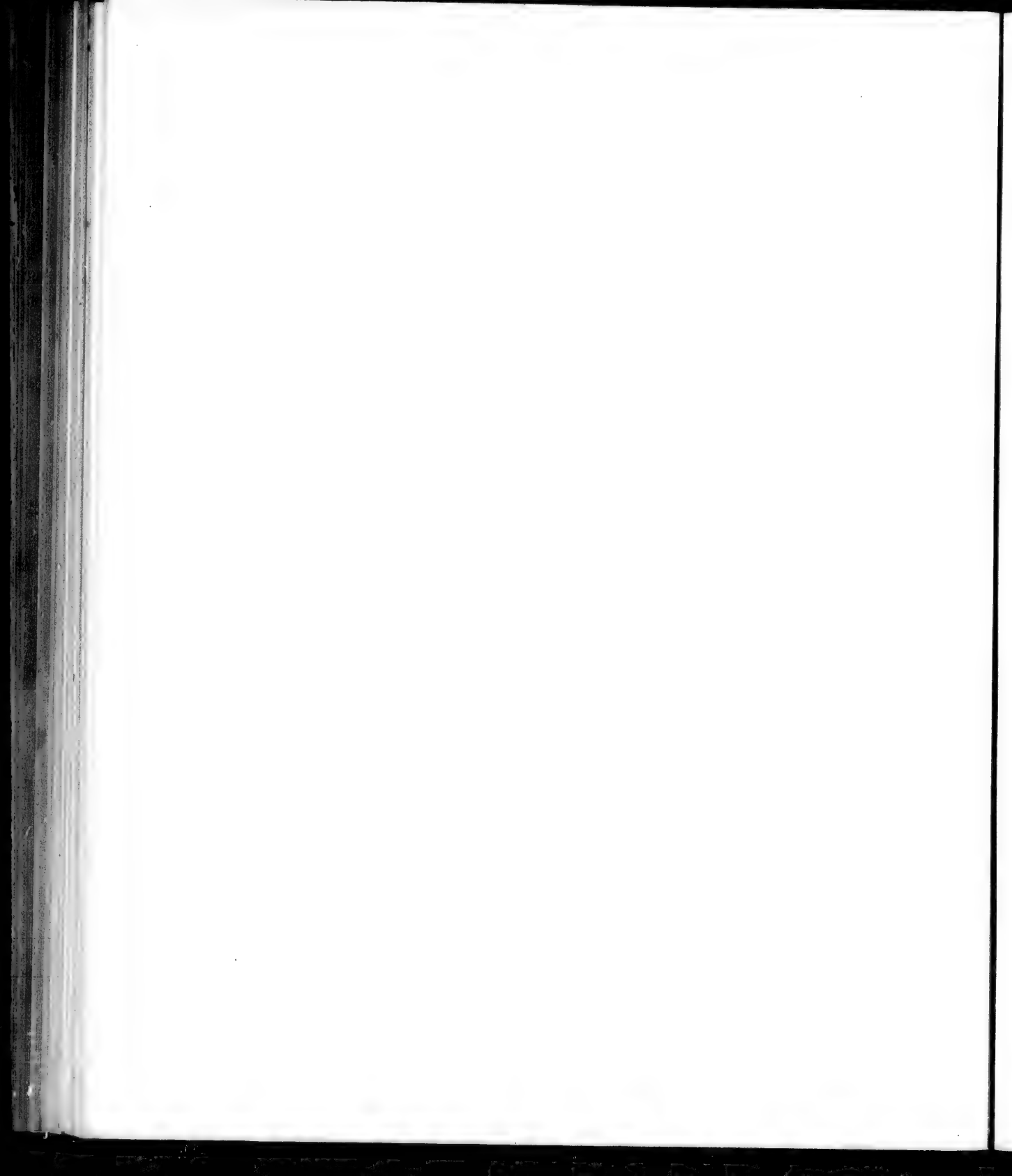
- 10 *Contracts 3, 6, 9 and 15*—The contractors are using their utmost efforts to advance the works, especially the masonry, on these sections, though they are so unskillfully and extravagantly managed, especially 3 and 6, that no reasonable advance would cover the cost of the work. There will be no appreciable reduction in quantities except in masonry, which will be considerable. It is probable that the rates now used will cover any reductions in quantities; but it would be sound policy to make an advance to the contractors at least to the end of October, irrespective of their contract sums, to enable them to prosecute the masonry vigorously, as the organization, though still faulty, is better now than it ever has been; and I think that, before the winter sets in, the masonry will be so far advanced that with good management it might be completed, or very far
20 advanced, by the end of next year.

I propose to have a thorough revision of the quantities early in the winter; at present, it is not possible without hindering the work. Then, I feel convinced, it will be necessary for the Commissioners to put a pressure on those contractors whose contracts have lapsed by time. For instance, there is no reason why the works on the four sections in New Brunswick should cost so much, except by unskillful management. Several experienced men have been along, but have failed to make any arrangement either for the contract or for managing a section or sub-section, finding the contractors, especially of 3 and 6, altogether impracticable to deal with. Rather than allow this to go on, it would be a charitable action if the Commissioners were to take it out of their hands, and put
30 in some experienced man to carry out the works for their account.

Yours most truly,

(Signed,) M. SMITH.

S. FLEMING, Esq.



[404.]

OTTAWA, 22nd September, 1871.

GENTLEMEN,---In support of the request which we are about to present, we have the honour to make the following statement of the present state of forwardness of our works, of our disbursements, and of our receipts for Sections No. 3, 6, 9, and 15 of the Intercolonial.

40	Amount of Contract No. 3.....	\$ 462,000 00
	“ “ 6.....	457,000 00
	Total.....	\$919,000 00
\$441,231 disbursements for both Sections.		
239,700 receipts on account of both Sections.		
	Amount of Contract No. 9.....	\$ 355,000 00
	“ “ 15.....	364,000 00
	Total.....	\$719,000 00
\$386,696 disbursements for both Sections.		
187,400 receipts on account of both Sections.		
50	Total disbursements.....	\$827,924 00
	Total receipts.....	427,100 00
	Amount expended over receipts (Deconvert)	\$400,824 00

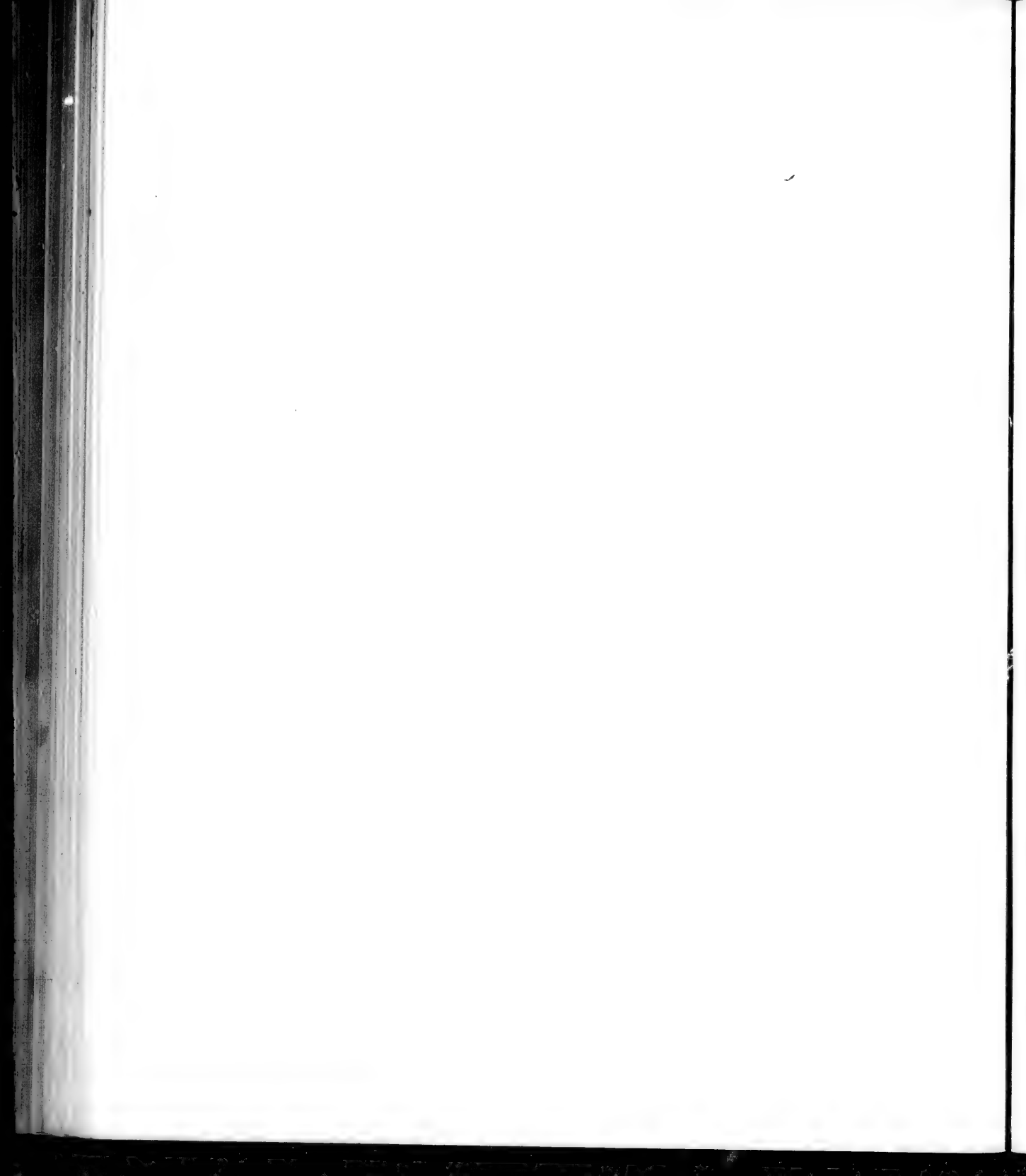
In addition to the item of our disbursements, others exist for the maintaining of three stores, and others for the supplying of the same for the winter.

You have lately witnessed yourselves, Gentlemen, our organization; and you may thus have been convinced that we are serious and desirous of carrying out honourably our Contracts.

You will readily admit that the works remaining to be done will be considerably diminished in cost owing to our organization, which has been so very expensive to us for executing the first part of our works, which organization is in working order for executing
60 the balance of our work.

We do not, therefore, hesitate to state, and to prove, if required, that the value of the works remaining to be done is not worth more than one-third of the amount of our Contracts. We are so positive in our allegations that we do not hesitate in declaring that at the opening of the next navigation, we will not be in the way for the laying of the rails and the overstructures of the iron bridges. Any person who has visited the works can testify the truth of this allegation.

Now that we have made known to you our position, we request that the sum of Fifty thousand dollars be granted to us on account of the amount of each of our Contracts to enable us to continue the works with the same activity with which we have carried them
70 out up to this day. We are convinced that our request is so just a one that we do not consider it to be a favour.



We feel so confident that our request will be complied with, inasmuch as the works are progressing with the greatest activity, and there are more than 3,200 men now working on the Sections.

We are respectfully, Gentlemen,

Your obedient servants,

F. X. BERLINGUET & Co

J. B. BERTRAND & Co.

To the COMMISSIONERS OF THE INTERCOLONIAL RAILWAY.

80 [405.]

MADRID, 26th September, 1871.

DEAR SIR,—Would you be kind enough when convenient, to give the height of bridge, sent for Elm Tree River, and by so doing oblige,

Yours very truly,

(Signed.)

J. B. BERTRAND & CO.

per J. A. TURCOTTE.

CHARLES O'DELL;

Division Engineer,

Section 9.

[406.]

90

INTERCOLONIAL RAILWAY,

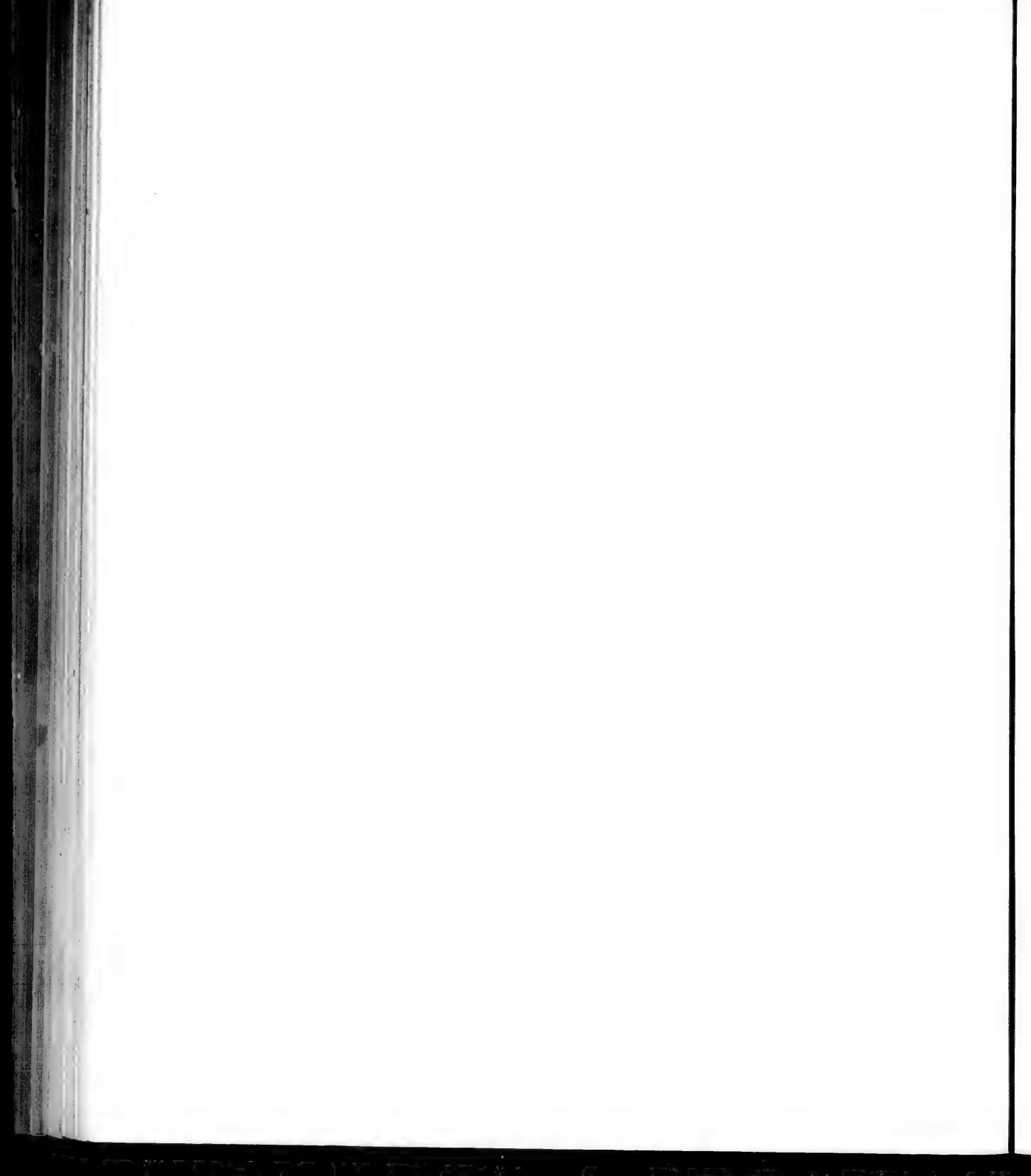
OFFICE OF THE CHIEF ENGINEER,

OTTAWA, September 27th, 1871.

DEAR SIR,—I find that many of the contractors complain that the monthly certificates prove inadequate to actual disbursements; that they are obliged to sink private means, in some cases to a large extent, in their efforts to carry on the work they have undertaken, and I am requested to recommend that course of action which appears to be most expedient under the circumstances.

With regard to the monthly certificates not furnishing the contractors with sufficient funds to pay current expenses, I may observe that as these certificates are made up by computing the actual quantities of work executed at prices established by Order in Council, I have no power to vary them in any manner, and the only way to increase the certificates is for the Government to increase the prices which govern them.

I reported at some length on the whole subject on 26th May last, and again on the 26th July, to which letters I beg to refer. Some assistance was then granted to the contractors, and this assistance has undoubtedly been of great service in enabling them to push on the work with much greater vigour than previously, and I have much pleasure in stating that the work executed so far has, with very few exceptions indeed, been done in a satisfactory manner. In the letters referred to, I submitted the reasons why I thought it would be much better, under all the circumstances, for the Government to come to the assistance of the present contractors, than to take the work out of their hands and re-let
110 it to others. I am still very much of the same opinion, and in order to secure the



completion of the railway with the least difficulty and delay, having regard at the same time to economy, I would recommend still further aid to those contractors who have special difficulties to contend with.

I am leaving to-day for the purpose of again going over the whole line, and on my return I will be better prepared to state to what extent assistance should be rendered to the contractors above specially referred to. In the meantime, I would recommend that the rates adopted by Order in Council, dated 13th June, be amended in the following particulars: Section (13) thirteen: rock excavation to be \$1 per yard; earth excavation 28cts. per yard. Sections 14, 17, 18, 19, 3, 6, 9, 15, that is to say, the whole of the Resti-
120 gouche District including Section (14) fourteen of the St. Lawrence District, the rock excavation to be at a uniform rate of \$1 per cubic yard, earth excavation 28 cts. per yard, first-class masonry \$15 per yard, second-class masonry \$12 per yard. I would further recommend that certificates for the work done up to the end of the present month be made out at the proposed new rates.

(Signed,)

SANFORD FLEMING,

Chief Engineer.

RALPH JONES, Esq.,
Secretary.

[407.]

27th September, 1871.

MY DEAR SIR.—I forgot to mention to you that on my road to Bathurst I looked at the
130 line that had been staked out for the tunnel at Armstrong's Brook, which I found set out, in accordance with the instructions of the Chief Engineer, viz., the tunnel *straight from end to end*.

[Sketch.]

The dotted line representing the tunnel. This would involve a very large quantity of open cutting at the lower end, on account of the great height of the banks and the contour on the water level. I therefore took the liberty of altering the line at the lower end, and shall write to the chief to be allowed to *curve* the tunnel at the lower end. If he will not allow this, the *curved* line which I have set out will still greatly reduce the quantity of open cutting. Herewith I send you a copy of the Chief's instructions, and you will please to
140 instruct Mr. Boulger to examine if the line will give the conditions as to thickness of rock above, and at the side of tunnel; if not, that the line of tunnel must be set further in, as shewn by red line on figure next page, the ends remaining the same.

[Sketch.]

I thought I had an enlarged plan shewing line of edge of water, and at the top of the bluff, but I cannot find it. Please instruct Mr. Boulger to make one, and I shall come down in a week or so and finally fix the line of tunnel. Meanwhile, the contractor has enough to go on with opening the ends.

Yours truly,

(Signed,)

M. SMITH.

150 CHAS. ODELL, Esq.,
Division M.

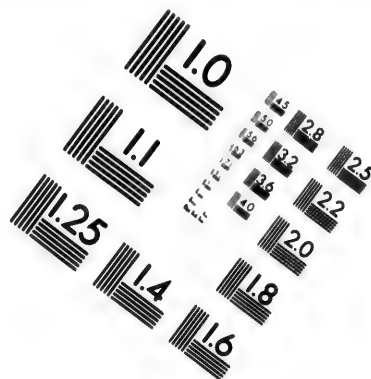
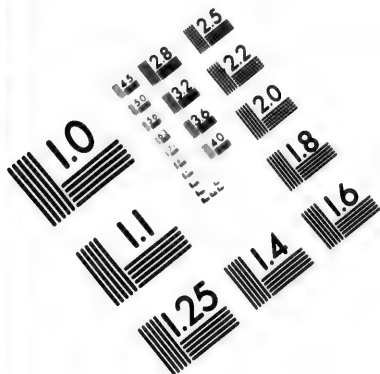
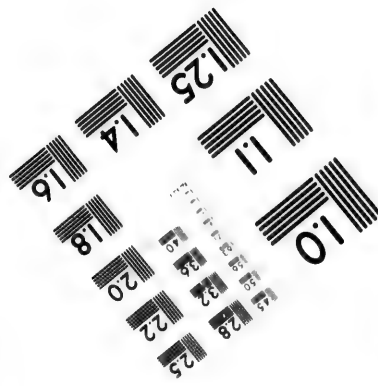
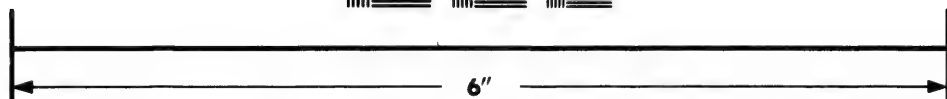
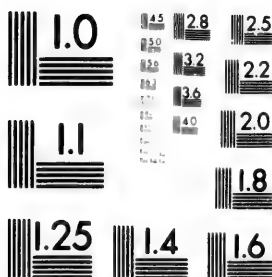


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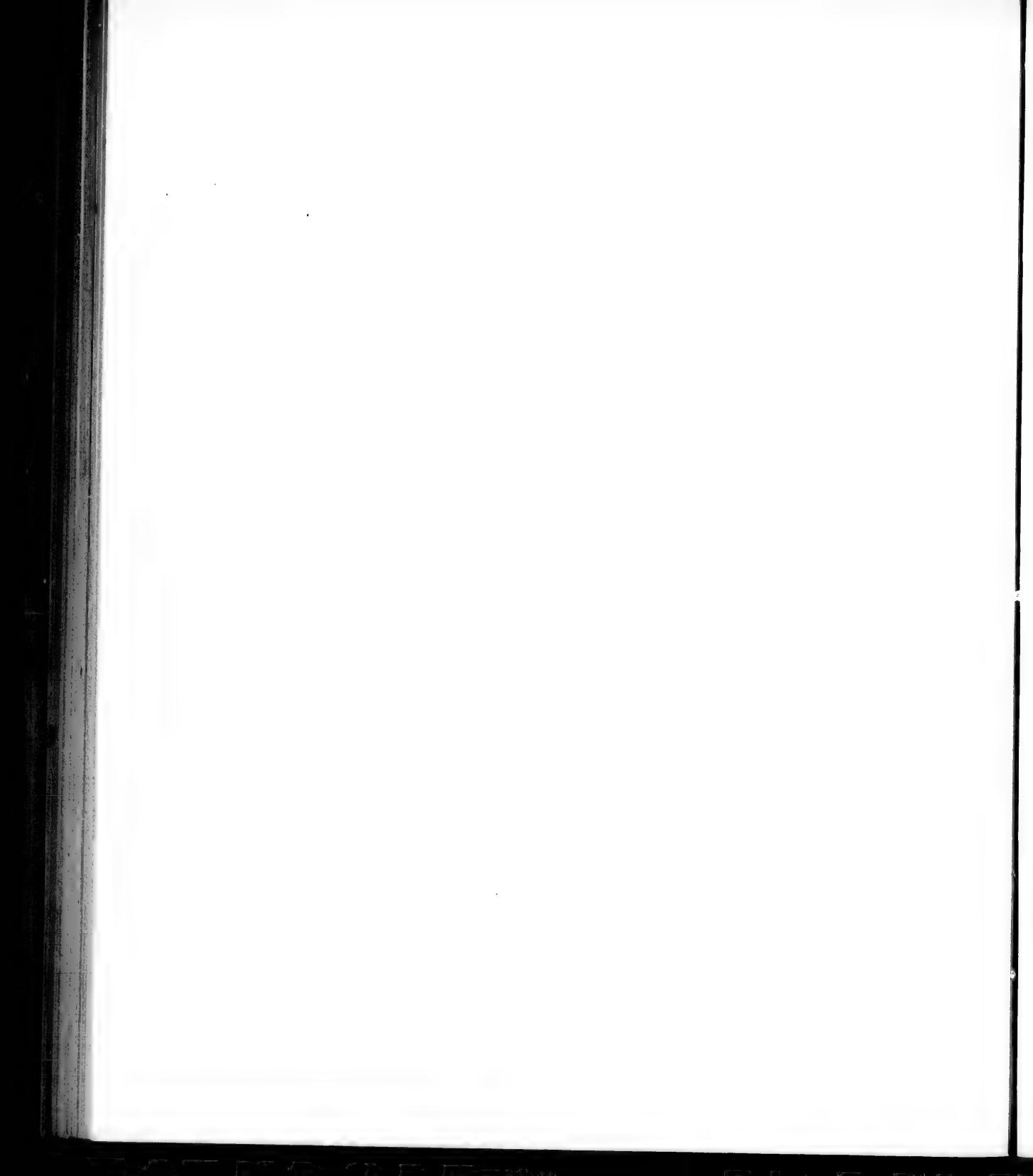


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[408.]

(Extract from Minutes of Intercolonial Railway Commissioners, dated 27th Sept., 1871.)

Minute of Council approving Report, dated 27th inst., as to Contractors payments was read.

Resolved,—That the following advances be made.

* * * * *

On Contracts 3, 6, 9 and 15 the sum of \$25,000 each, making \$100,000 for the four.

* * * * *

Resolved,—That Mr. Fleming be instructed to prepare as soon as possible a statement
160 of the amount of work still to be done in the following contracts, viz., Nos. 3, 6, 9 and 15, shewing, according to the present revised work, the quantity of each item of work still to do, so that an extract statement may be rendered of what remains actually to do upon each Contract.

* * * * *

(Signed,) A. WALSH,
Chairman.

The following report to the Council on the question of the claims made by certain of the contractors in regard to the payments made to them was adopted.

OTTAWA, September 27th, 1871.

170 The Commissioners for the construction of the Intercolonial Railway beg to report to the Governor in Council, on certain representations which have been made to them, by some of the contractors, in regard to the payments which they are receiving for the work they are executing.

* * * * *

The remainder of the line, viz., between Metis and Moncton, runs mainly through a wild and to a large extent unsettled country, where population is sparse and the difficulty of access in the most part great.

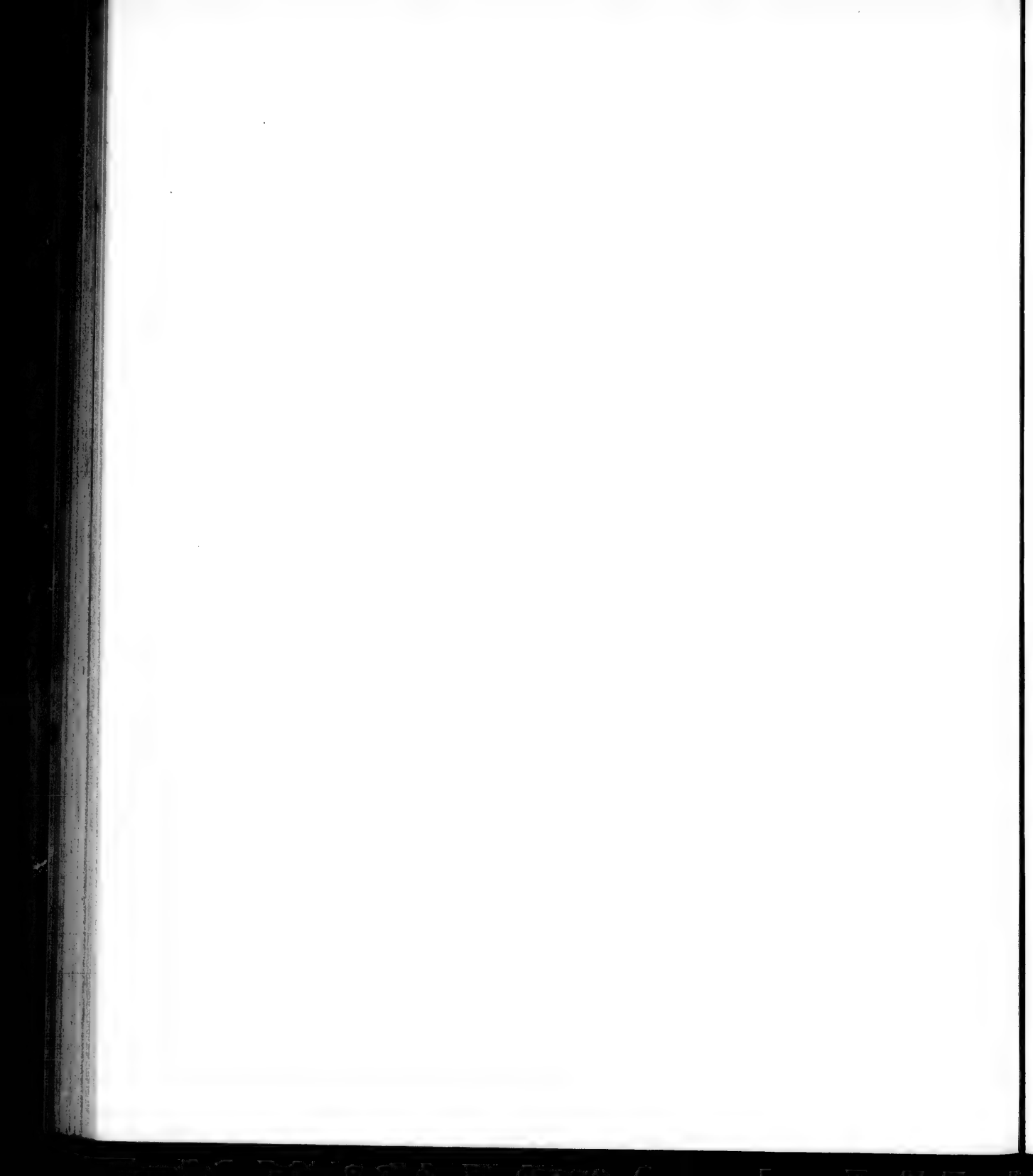
Many of these contracts were let when prices of labour and materials were much lower.

In all these contracts large outlays have been necessary in sending in supplies and men,
180 providing dwellings, opening and finding quarries, and procuring the plant necessary to start and carry on the work. All these outlays have now been made, quarries have been opened on all the contracts, and all needful preparations made, at a large cost, to vigorously prosecute the works. The monthly certificates of the engineer, of course, only include the actual number of yards of masonry, earth work, &c. actually executed, and thus cannot meet the outlay incurred in preparations, and which will apply to the whole work to be performed.

The Commissioners have discussed this matter fully with the Chief Engineer, and annex a letter which he has addressed to them on the subject.

It is clear that the works, if re-let now, would cost far more than the present contracts,
190 besides involve great delay.

Mr. Fleming reports: "That he has much pleasure in stating that the works executed so far has, with a very few exceptions indeed, been done in a satisfactory manner," and



proceeds to say that he would recommend still further aid to those contractors who have special difficulties to contend with.

This is the time when the season allows work to be most energetically pushed, and the Commissioners are strongly of opinion that the public interests would be best served by lending a reasonable and moderate aid now to those contractors who need it, and are using their utmost to push on the work.

200 Considerable changes have been made by careful study of the work in the total quantities to be executed in several cases, and the Commissioners believe that when the final completion is arrived at, the result will be the same, as experienced in this work so far, viz., That the latter estimates will be considerably in excess of the work actually performed in the closing months of the execution of the contract.

The Commissioners, after fully considering the whole matter, recommend that for the contracts between Metis and Bathurst and No. 12 a careful estimate to be made of the work yet to be done to complete the work. That when such revised quantities are ascertained a just schedule of prices to be made out to apply to such quantities, and that until this is done, the Commissioners be authorized to make such advances to the contractors requiring aid as in each case they may consider expedient.

210

(Signed.)

A. WALSH.

C. J. BRYDGES.

A. W. McLELLAN.

Copy of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor in Council, on the 28th September, 1871.

The Committee of Council have had under consideration the Memo. dated 27th Sept., 1871, from the Intercolonial Railway Commissioners, having reference to the expediency of extending to the contractors on the line every reasonable facility in the prosecution of their work, and on the recommendation of Sir George E. Cartier, acting in the absence of the Hon. the Minister of Public Works, they advise that the recommendation submitted in the said Memo. be approved, and that the authority required by the Commissioners, be granted.

220

Certified,

(Signed.)

W. H. LEE.

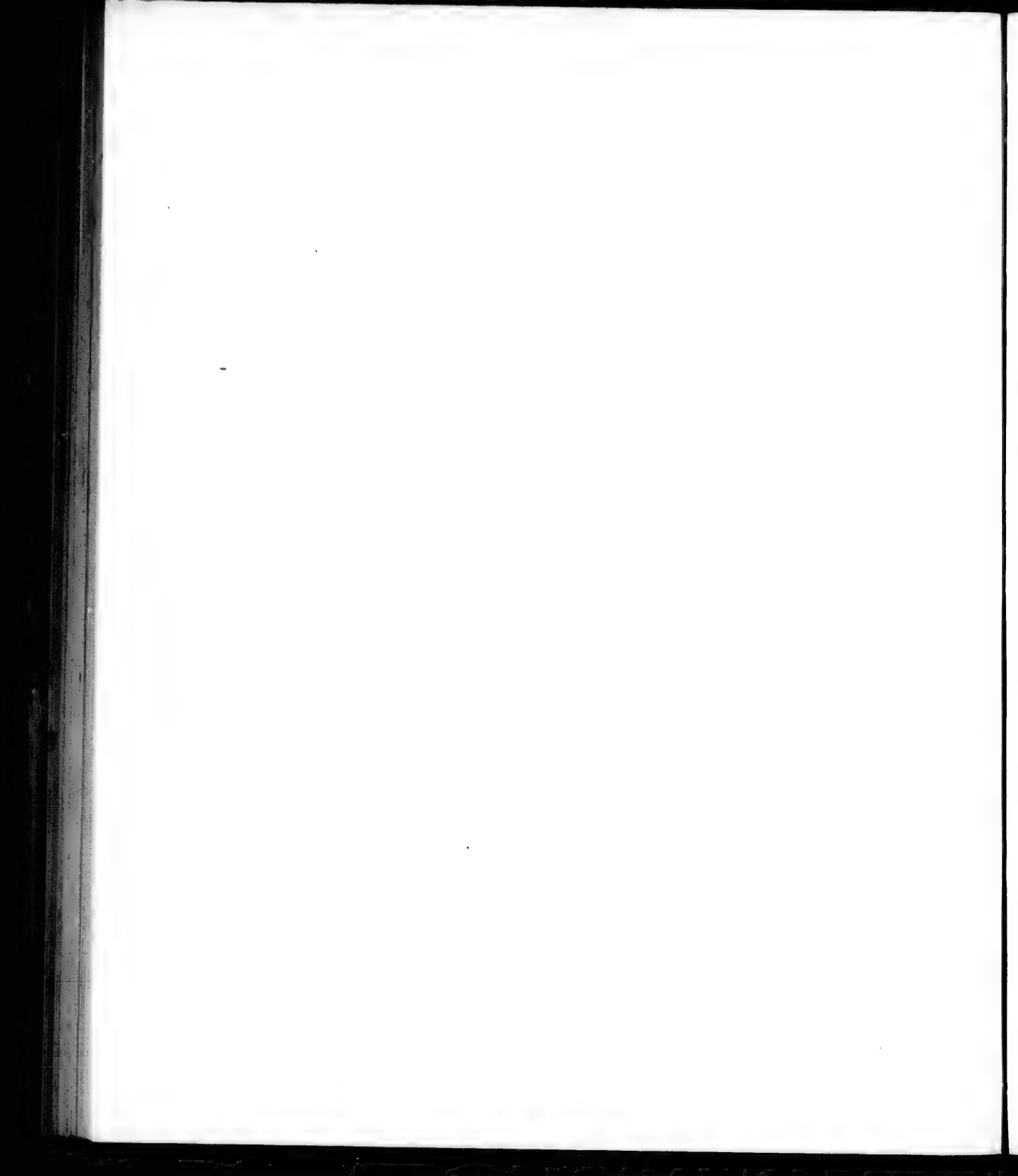
Clerk P. C.

To the Honorable
The Railway Commissioners,

[409.]

28th September, 1871.

230 MY DEAR SIR.—It is of very great importance that the catchwater ditches opposite earth excavations or embankments, finished, or in progress, should be made before the water sets in, more especially those opposite cuttings, otherwise much damage will be done to the slopes by the overflow of water. Please urge the contractors to commence these ditches without delay, and tell them if they neglect to do so a percentage will have to be kept back from the quantities of work executed any damage, that may occur.



The edge of the catchwater ditch should not be nearer the fence than six feet, or in extreme cases, where it cannot be avoided, it may be four feet.

When the space between top of slope of cutting, and fence is very wide, make edge of ditch about 20 feet from top of slope.

Yours most truly,
(Signed,) M. SMITH.

240 CHARLES ODELL, Esq.,
Division M.

[410.]

28th Sept, 1871.

MY DEAR SIR,—It is of very great importance that the catchwater ditches opposite cuttings and embankments, finished or in progress should be made before the winter sets in more especially those opposite cutting, otherwise much damage will be done to the slopes by the overflow of water. Please urge the contractors to commence their ditches without delay, and tell them if they neglect to do so a percentage will have to be kept back from the quantities of excavations to meet contingencies.

The edge of the catchwater ditch should not be nearer to fence than 6 feet, or in extreme cases where it cannot be avoided, it may be four feet; when the berm between top of slope and fence is very wide, make edge of ditch about 20 feet from top of slope.

Yours very truly,
(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
Division N.

[411.]

BATHURST, 30th Sept., 1871.

DEAR SIR,—Would you please give us the level of the contracts at 412 this evening and oblige,

Yours very truly,
(Signed,) J. B. BERTRAND & CO.,
Per C. H. MANN.

260

P. A. PETERSON, Esq., D.F.,
Bathurst.

[412.]

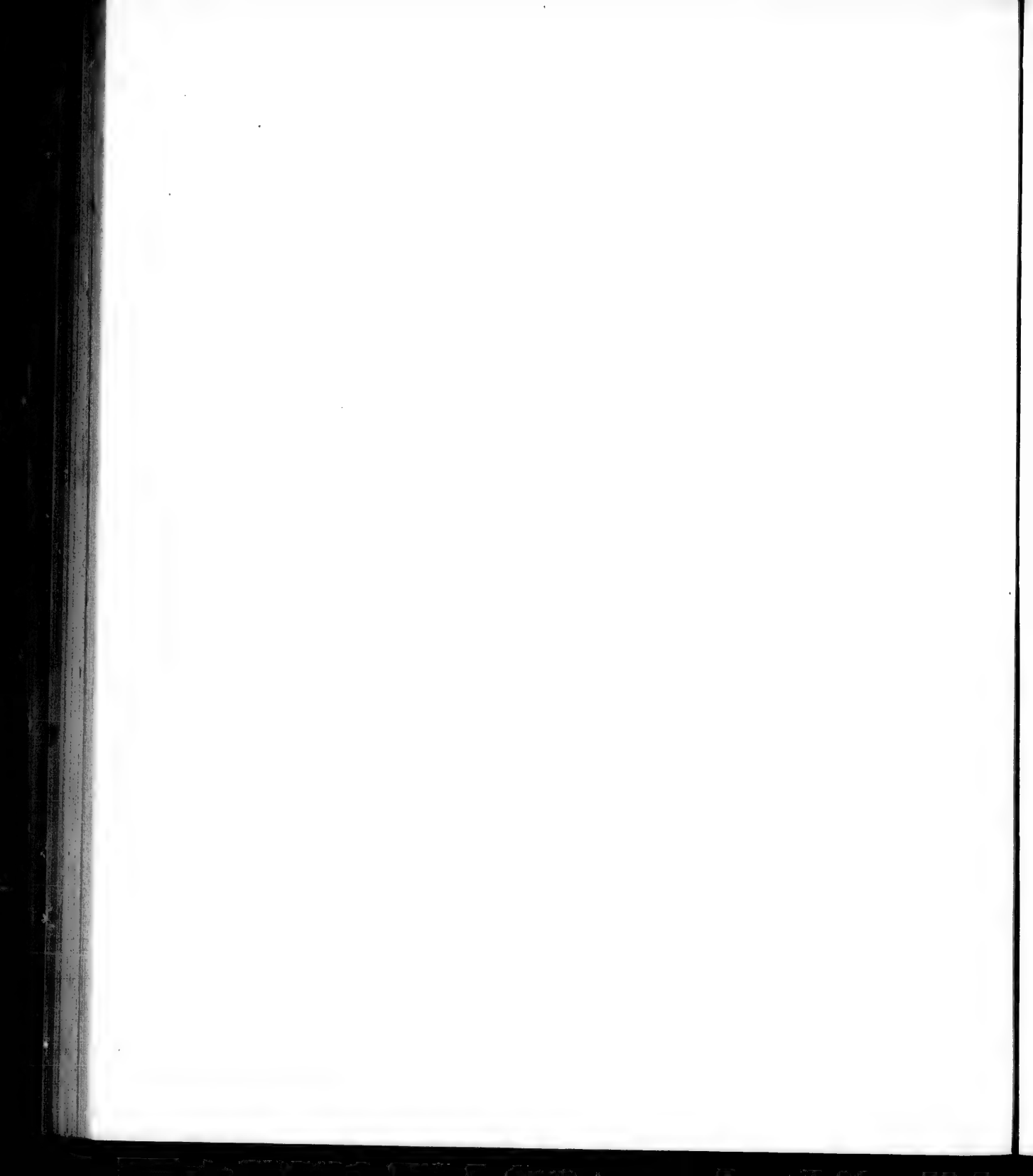
DIVISION M.
INTERCOLONIAL RAILWAY.
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

BATHURST, 2nd October, 1871.

MY DEAR SIR,—I herewith enclose the certificates for the month ending the 30th September, 1871. You will perceive that the Contractor's have gone on improving of late, 270 and their work generally is more satisfactory.

I remain yours truly,
(Signed,) CHAS. ODELL.

MARCUS SMITH, Esq.,
Dalhousie.



[418.]

BLACK LANDS, *via* DALHOUSIE,
October 2nd, 1871.

We can get foundation at Charlo River with the purchase we got. Eight inches more to go.

(Signed,) F. H. McCASKILL.

280 To M. SMITH.

[414.]

October 5th, 1871.

By Telegraph from Campbellton
To MARCUS SMITH.

Pier No. One (1), Christopher Brook, drilled with sledge and rod five (5) feet to very hard gravel to nine (9) feet below bottom of stream. At north end drilled eight (8) feet through clay and gravel to twelve feet below bottom of stream. I think substratum too hard to drive piles through.

H. A. F. MacLEOD.

[415.]

October 6th, 1871.

290 By Telegraph from Black Lands
To M. SMITH, C. E.

We commenced the foundation at Charlo River this a.m.

F. H. McCASKILL.

[416.]

MADISCO, 7th October, 1871.

DEAR SIR,—Will you be kind enough to set off the work for stream diversion at Station No. 807, as soon as convenient, as we are ready to commence the paving.

Yours very truly,

(Signed,) J. B. BERTRAND & Co.,

Per J. A. BURKE.

300 CHARLES ODELL, Esq.,
Division Engineer Section 9.

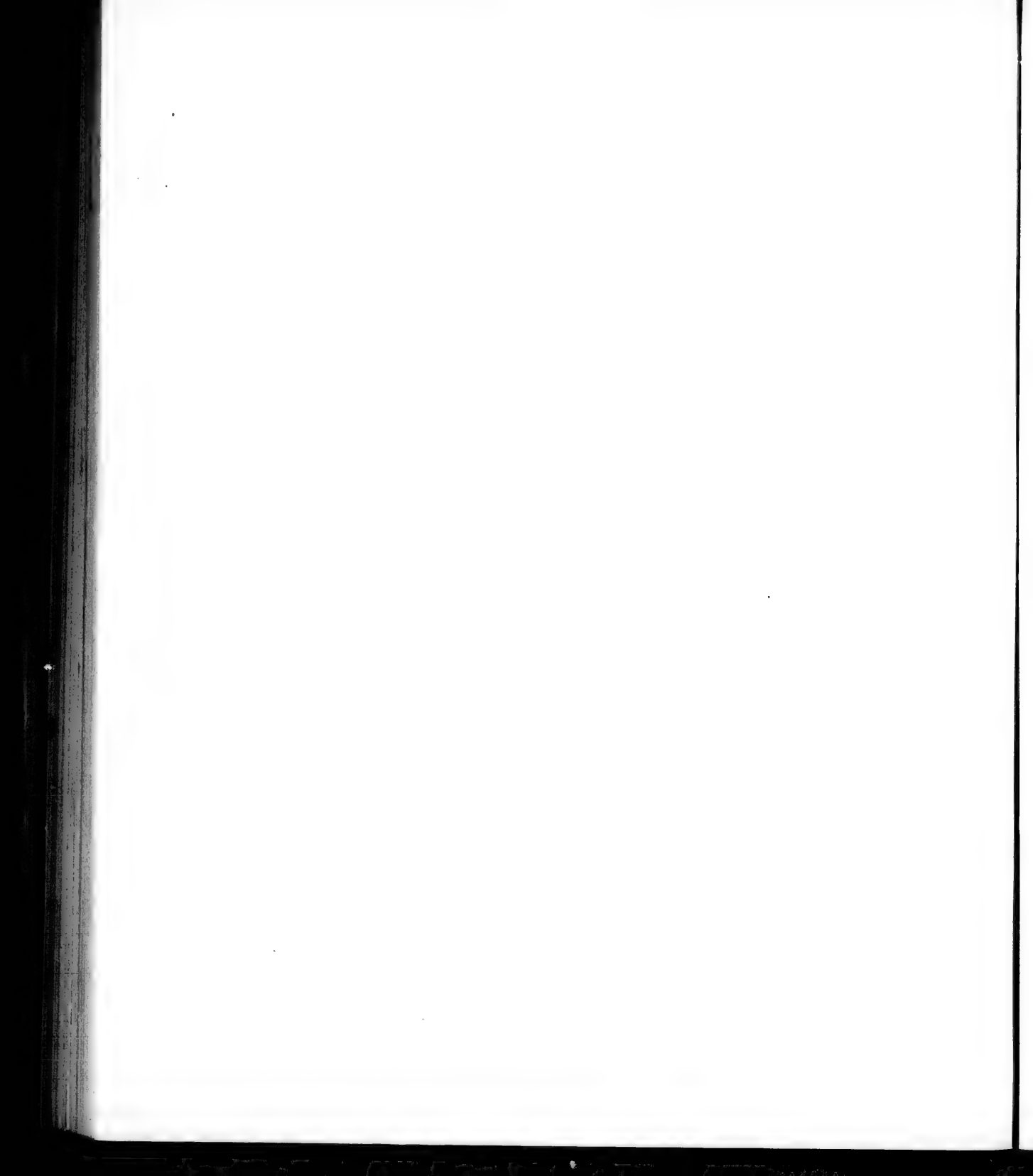
[417.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, MIRAMICHI DISTRICT,
NEWCASTLE, N.B., 7th October, 1871.

MY DEAR SIR,—I have already expressed my favorable opinion of much that has been done on your District, and given the contractors credit for the exertions made and making to secure satisfactory progress. In doing so ever, I feel it my duty to allude to one or two points that attracted my attention during my recent inspection, and I have to request that you will bring them under the notice of the contractors in any way you may consider

310 most advisable.

* * * * *



Section 9.—You are aware that I found fault with the beam culvert at Station 848, and the box culvert at Station 909. At these two points, the specifications are not regarded with regard to the use of cement. I saw common lime mortar used at water level in this position; I am satisfied it is perfectly worthless. I condemned the work generally at these two points. Much of the stone is not at all suitable for railway work, consisting as it does, of irregular shaped masses and small round field stone; there can be no reason for using such materials with the Elm Tree Quarry so conveniently near. I am satisfied it would be more economical, and more satisfactory in every way, to use only the stone from this good quarry in the several structures in this neighbourhood. I mentioned to you on 320 the spot that the plan of the easterly abutments of Elm Tree Bridge might be changed to suit the quarry if the contractors wished. A single circular void instead of two rectangular voids would, I think, work up the stone of this quarry best, and make a strong abutment. This form carefully built *throughout in cement*, and corvelled under bridge seat there, is no objection to.

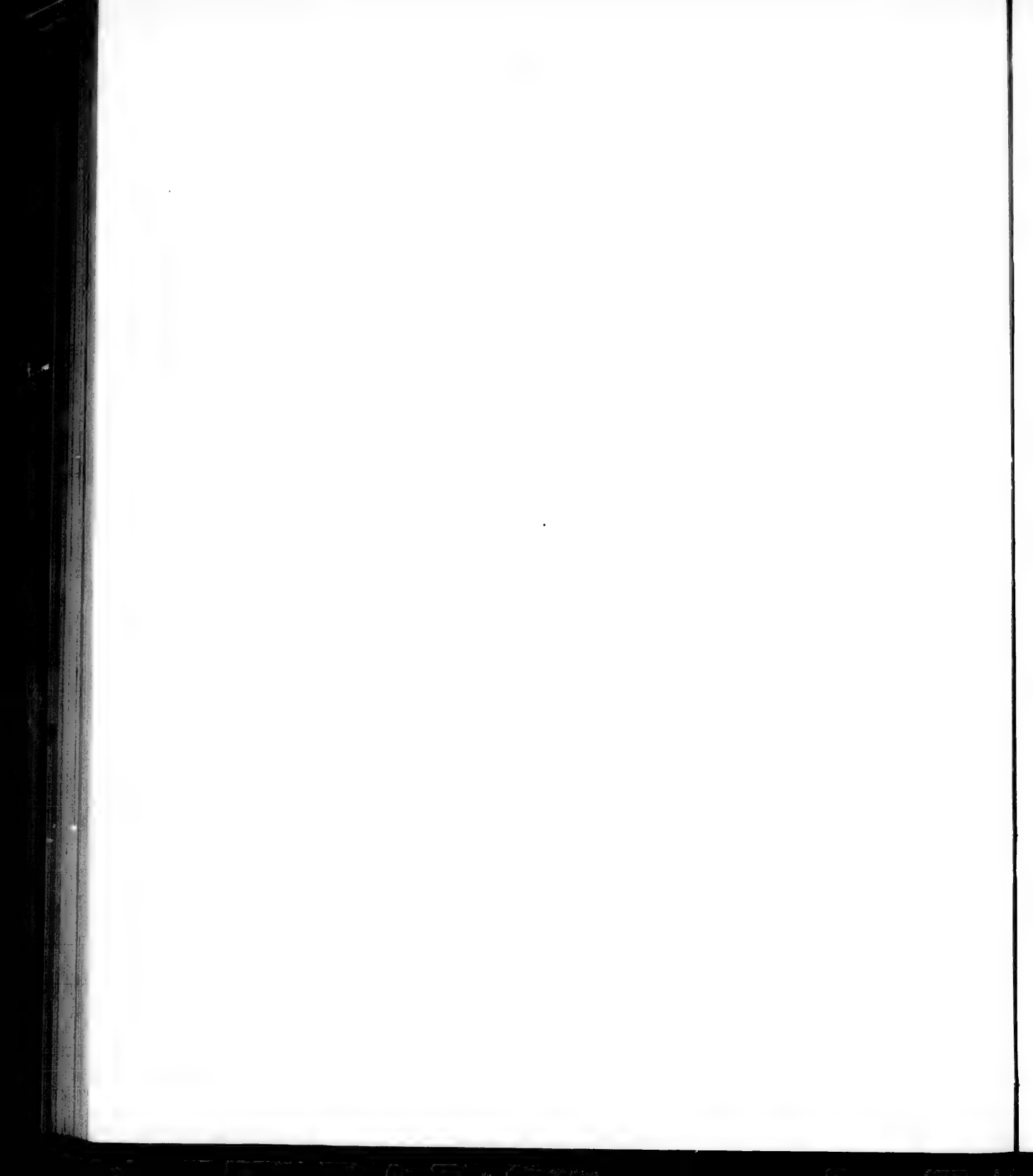
Section 15.—The masonry on this section is most excellent and will be a standing credit to the contractor and all concerned. We had a consultation about the foundation of easterly abutments at Tête à Gauche and Nipissiguit Rivers, as these abutments will, in all probability, be founded on gravel considerably above the level of the rivers and flats below. I would suggest using a liberal supply of cement in the form of very thin grout after the 330 excavation is made to the required depth and before the masonry is commenced. The object being to indurate the natural bed of gravel under and around the lower course of masonry; it might be most readily accomplished by filling the pit to a depth of, say 20 or 30 inches with water mixed with the cement to the consistency of cream, and allowing it to saturate the gravel underneath to a considerable depth; the grout should be well stirred and its filtration into the bed underneath assisted by punching holes with a crow-bar into the gravel.

Yours truly,

(Signed,) SANDFORD FLEMING,

Chief Engineer.

340 M. SMITH, Esq.,



[418.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 12th October, 1871.

350 MY DEAR SIR.—The contractor is now ready to commence to-day the steps on the beam culvert at 551. I have told the foreman that the top of the steps may be left rough, with the rock face, but to put a chamfer and margin round the edges, thus:—

[Sketch.]

I think this will make very neat work with very little labor, and for first-class work is about the least we could ask. Townsend told me that in Nova Scotia the steps were all dressed and weathered, thus;—

[Sketch.]

But this would be too much work in granite for such a small structure. Please let me know at once if the plan I propose will answer, as the work is in going on. One step was 360 partly dressed yesterday.

Yours very truly,
(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq., District Engineer, Dalhousie.

[419.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 12th October, 1871.

MY DEAR SIR.—The contractor is hauling the sandstone from the Rough Waters to the Tête-à-Gauche bridge, and wants to put it in for backing in two thicknesses. As the stone is very doubtful, I have told the Inspector not to allow it in the bottom of those tall 370 piers in two thicknesses. Some of the stone is quite hard and crystalline, but more of it is soft and dead. I brought in an average sample on Tuesday last, and pounded it up and washed it. The sample, after being pounded, weighed 11½ ounces, and, after being washed and dried, weighed 8½ ounces; and if this is called 9 oz. you will see that there is only 80 per cent., of sand and quartz in the rock; the remainder 20 per cent is fine red clay. I am now filtering this clay out of the water, and will then weigh it, but I do not think the result will be changed very much. Mr. Fleming did not seem to think much of the stone, and when I said I thought it might do for backing in the abutments, he said he would be afraid of it unless we put it in large masses, as in the *bell-shaped* abutments, but added, we would see after it was quarried how it stood the winter; and by this I supposed he 380 did not intend any to be used now. I intended to talk the matter over with you, but in the hurry forgot it. I think it would be as well to build *all* the foundations at the Tête-à-Gauche of granite. Please let me know as soon as possible what I am to do.

Yours very truly,
(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq., District Engineer, Dalhousie.

[420.]

16th October, 1871.

By Telegraph from Bathurst,
To M. SMITH.

Contractor has this morning ordered foreman at Tête-à-Gauche bridge to put the 390 sand stone, I wrote you about the twelfth instant, in the backing of the bottom pier number two (2) I had previously forbidden it to be used in the bottom of the piers.

(Signed,) P. PETERSON.

[421.]

MONTREAL TELEGRAPH COMPANY,
DALHOUSIE, 16th October, 1871.

To P. A. PETERSON,
Bathurst.

Binding stones, whether in face or centre of piers at Tete-à-Gauche bridge, should be granite; sand stone only to be used for packing. Sketch sent next mail.

(Signed,) M. SMITH.

400 [422.]

17th October, 1871.

MY DEAR SIR,—I saw Mr. Bertrand here on Saturday and told him I would rather he would not use any of the sand stone from Rough Waters, in the piers of the Tête-à-Gauche bridge, that in the back of the abutment they would not be so objectionable or in any other structure but the Tête-à-Gauche, all of which are comparatively low. but he complained of the great expense of cutting granite for backing and urged that the granite is so strong that it does not require but a fraction of the bearing surface of the pier to keep it from crushing. There is some reason in this, so that I said he might use the sandstone for backing, but the pier must be well bonded with granite thus: Granite, tinted red, Sandstone, grey.

410

[Sketch.]

The next course should be granite blocks in center to cover sandstones, and to bind on to granite at each end.

[Sketch.]

From the above it will appear that but a very small quantity of sandstone can be used, for, it must be borne in mind, that though it may offer a great resistance to a crushing force but very little to tension. As a tie, it is useless and unless the outside courses of granite are tied together, say at least every third course, there would be danger of the pier splitting down the middle, so let it be used principally for packing, and I don't care

if vertical joints in heart of pier are wide and filled up with sandstone provided the main
420 blocks are well bonded. You can save contractors a great deal of cutting by adopting
this method.

Yours truly,
(Signed,) M. SMITH.

P.S.—This has got so blurred in copying in a hurry you will scarce be able to make
it out. Please draw a sketch and send it to me. The main point is to bind the outside
courses of granite together with a granite bond, say two courses of granite together right
across the pier and well bonded. Then there may be three courses of hearting, all sand-
stone, then two courses again entirely of granite (except packing joints) and so on to
the top.

430

P. A. PETERSON, Esq.,
Division N.

(Signed,) M. S.

[423.]

INTERCOLONIAL RAILWAY ENGINEER'S OFFICE.

RESTIGOUCHE DISTRICT, BATHURST, October 19, 1871.

MY DEAR SIR,—I have just come in from the red sand stone quarry, when I found the
stone just the same as when the quarry was first opened. It is solid and in good beds,
ranging from 12 to 20 inches, but the composition of the stone is against it. In no place
along the cliff could I find an exposed piece that was not crumbling away rapidly.

The foreman, Carters Brook, wants to use the sandstone for his foundation, thus
440 instant as in the sketch I sent last night,

[Sketch.]

putting in there 16-inch courses, instead of two 24-inch courses. The two bottom course
to be of sandstone. This will only leave some inches of granite between the water and
the sandstone, and if the sandstone is allowed to all, I think from the samples I have seen
in building here that it should be kept away from the frost and wet. The contractor will
be ready to commence the foundation on the east side of Carter's Brook on Saturday next.

Yours very truly,
(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
450 District Engineer, Dalhousie.

[424.]

INTERCOLONIAL RAILWAY ENGINEER'S OFFICE,

RESTIGOUCHE DISTRICT, 19th October, 1871.

DEAR SIR,—I have received yours of the 17th inst., with sketch of masonry for pier on
the Tête-à-Gauche. Will the sandstone be allowed to be put in in two thicknesses thus ?

[Sketch.]

The hatched portions are sandstone. I am going to the quarry to-morrow and will then tell you what the stones look like. The Inspector does not think it good stone, neither does the foreman at the bridge, but of course I would not mention this to the contractor.

The contractor has given the foreman orders not to use any sandstone in the piers, except for packing small holes, and for opalls to fill up narrow spaces thus :

[Sketch.]

Sandstone used in hatched portions.

Yours very truly,

P. ALEX. PETERSON.

The contractor proposes to put sandstone in foundation of 10 arch at Carter's Brook, thus :

[Sketch.]

Do you think it will answer ? Let me know by return of mail, as the stone is being
470 dressed now.

P. ALEX. P.

MARCUS SMITH, Esq.,
District Engineer, Dalhousie.

[425.]

20th October, 1871.

MY DEAR SIR,—In making out your new schedule of quantities of works in your division, you will of course have each excavation (whether from line cutting, side ditches or special borrow pits), in detail, but I don't intend to return it in that form at present, as it would be tedious and difficult to show how each cutting is disposed of in a manner clear enough to be understood by the Commissioners or Contractors. I think it better to divide the line in short sections, making the division coincide as nearly as possible with the
480 grouping in the printed schedule, but only giving the quantities in each group in *one lump*, for which I herewith send you a form. It is possible the work may not have been carried out exactly as grouped in the printed schedule. Part of a cutting in one group may have been carried to an embankment in another group; but that will not alter the quantities. It will only cause a little more borrowing in one and a little less in another group; *for you must bear in mind that the embankment added to the spoil (if any) gives the true quantities in each group, no matter what cuttings the material may have come from.*

I also send a form for masonry and paving. In this there is only one column for excavations in foundations, but in cases, where there is both earth and rock, you will enter the quantities one over the other, and bracket them together, marking the rock with a
490 star, thus;

{ 174* Also entering the total at bottom of column in two lines.
790

Catch-water drains, Outlets and inlets to culverts, will be collected together and form a separate item of earthwork. Catch-water drains will be required on the higher side of *all* cuttings and such embankments as have not been made up from side ditches. They should



in no case be less than 2 feet deep, 2 feet wide at bottom, and slope $1\frac{1}{2}$ feet; say with liberal allowance of length one cubic yard to yard run. But on sloping and wet ground they should be larger, and you may estimate $1\frac{1}{2}$ yards to a yard run.

Underdrains.—Make a careful study of the ground where they are required and get 500 quantity as closely approximate as possible.

Riprap will average about 3 feet thick perpendicular to slope, and of height, 3 feet above flood, thus,

[Sketch.]

Concrete, Fencing, Clearing, &c.—Get as near as you can.

Bridge Superstructure Timber.—Estimate by the foot run.

Pumping Cofferdams, &c., will have to be in money.

Tunnel.—Get quantity or cost of rock in approaches and cost of tunnel per foot run (as per contract), adding 15 per cent for management. Get out rough copy and I shall be down about end of month to help you to complete the schedule.

510

Yours most truly,

(Signed,)

M. SMITH.

CHAS. ODELL, Esq.,

Division M.

P. S.—Don't omit road approaches to public and farm crossings.

[426.]

20th October, 1871.

MY DEAR SIR,—I have your favor of the 19th inst., referring to the use of sandstone from Rough Waters quarry in the arch culvert at Carter's Brook. From what I have seen of this sandstone I do not think it fit for the foundations of any large structure or for face work. At Carter's Brook, the foundations up to top of invert (where the latter joins the 520 abutment) should be of granite, except the hearting or packing. Above that the face stones only may be of granite, and all the backing of sand stone, that is to say, if it comes out not only in thick blocks but of large beds.

Also in the piers of the Tête-à-Gauche, if the sandstone is large in the bed, there may be three courses in the heart of the pier (say making a total of five to six feet in height) entirely of sandstone. Above this there should be two courses entirely of granite well bonding each other, forming a tie to be like the horizontal wall in the drawing. I say 3 courses, but if 4 are required to reach the horizontal wall in the abutment, you may allow it to be done. I mean that the horizontal wall should go right through the structure in two courses of granite.

530

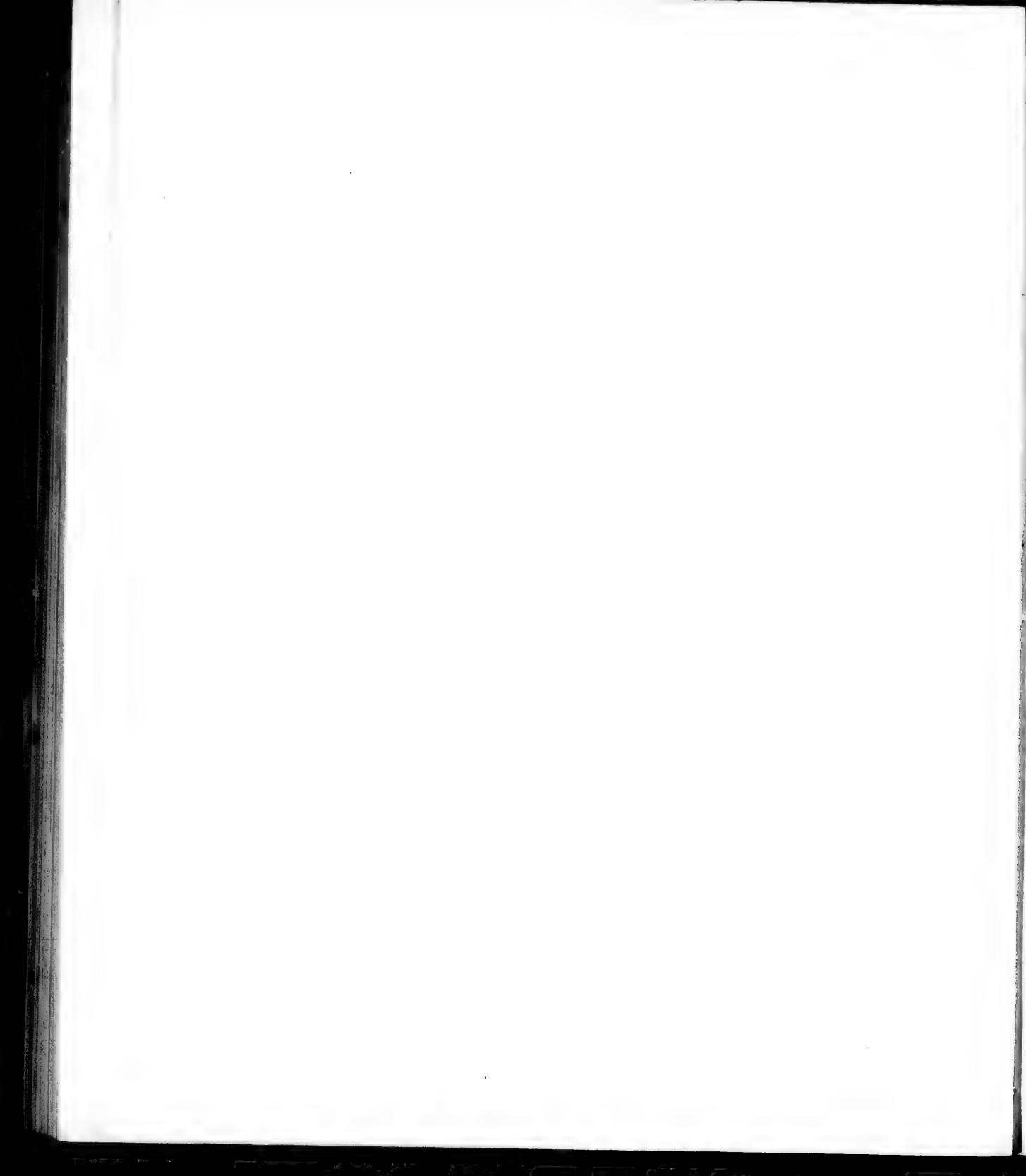
Yours truly,

(Signed,)

M. SMITH.

P. A. PETERSON, Esq.,

Division N.



[428.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, October 21, 1871.

580 MY DEAR SIR,—I send by mail to-day some of the samples of the red sandstone. The larger piece is a good sample of it, and the smaller pieces are taken from the stone-cutters as they were knocked off the stone that is being dressed at Carter's Brook. The crystalline sample is taken from one of the thin beds that are found mixed up with the softer stone. This stone comes out in *large beds*, and generally in blocks from a foot to eighteen inches in thickness—some two feet thick.

The foreman at Tête-à-Gauche told me, when I informed him that he might use the sand as shown in your letter of the 17th inst., that the contractor had told him not to use any save for packing small spaces.

I can find no one to speak in favour of this stone. The people of the country, who 590 have used it for chimneys, etc., say it will not stand when underground or when exposed to the weather. A farmer here, who had some good samples of it in his chimney, told me that what was under ground all went to pieces.

I think you told me it was decided to build Peter's River an 18-foot arch. I have had it laid out to-day as such. The contractor will commence excavation Monday.

The east abutment of the Nepissignit bridge comes on the edge of the bank thus :

[Sketch]

Will you allow the material that comes out of the foundation pit to remain on the face of the slope, as shown on the sketch ?

Yours very truly,

(Signed,) P. ALEX. PETERSON.

600

MARCUS SMITH, Esq., District Engineer, Dalhousie.

[429.]

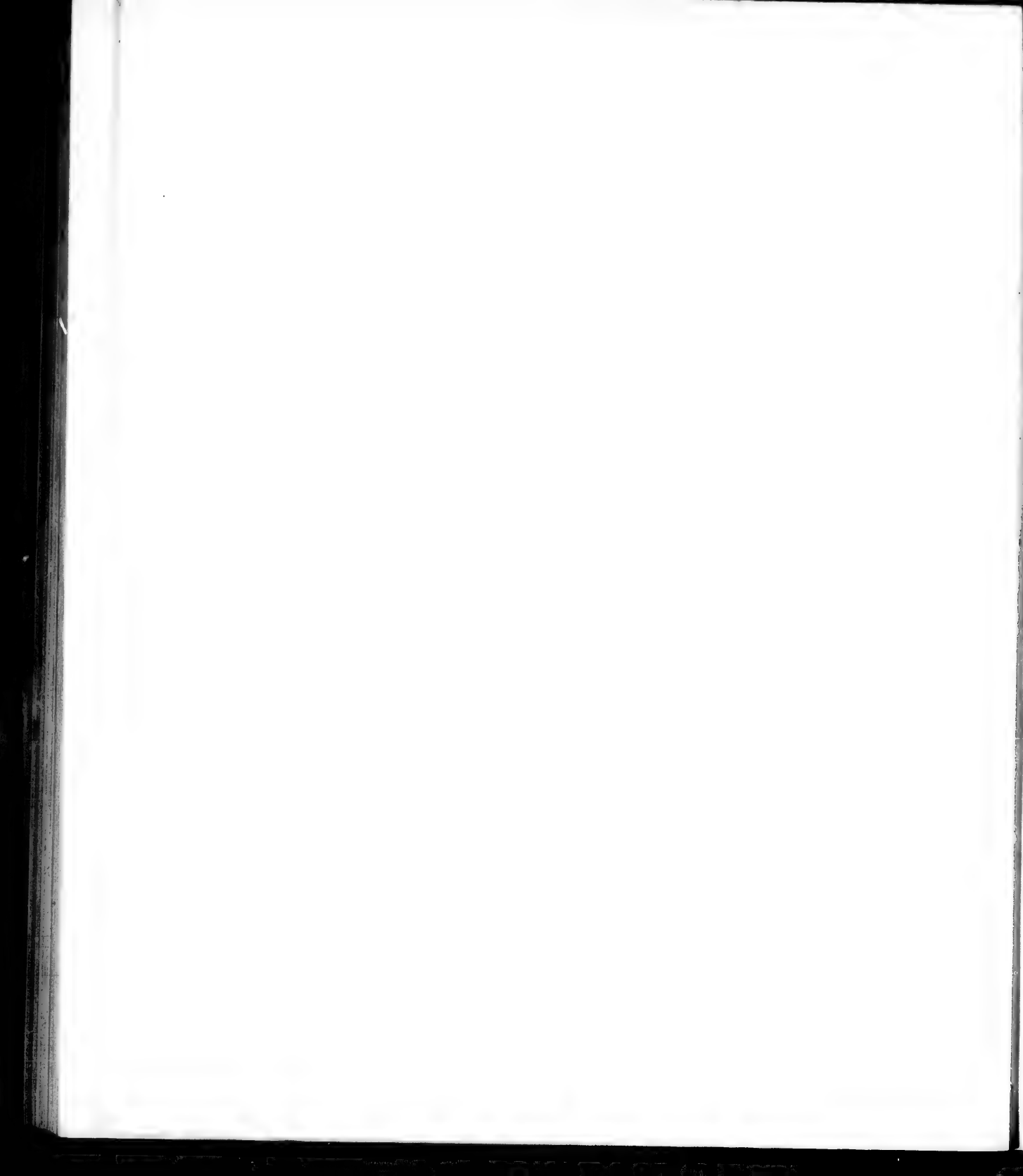
INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, October 24, 1871.

MY DEAR SIR,—The contractor came in this morning, complaining that I had stopped the work at Carter's Brook by not allowing the red sandstone to go in the foundation. I explained the matter to him and showed him the samples I had tested, and told him that I could find no one to speak in favour of the stone, and that in every place that I had seen it used it had wasted away. He said he was certain you would allow it when you saw 610 the stone, and that it was all my report against it, and that I was always against him, etc., etc.

So I told him that, in order to keep the work going on, he might use the *best* samples of this stone in the bottom, in the centre of the arch, six feet from each end, thus :

[Sketch.]

making the bottom course all sandstone, and the next two courses granite in front, with sandstone backing.



I don't know that I have done quite right in allowing this, but you will, I suppose, be down to see it yourself before much is laid. They are laying the granite at the upper end now, and you will receive this and have time to telegraph me before any sandstone is laid.

Yours very truly,

(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq., District Engineer, Dalhousie.

30th October, 1871.

[430.]

By Telegraph from Ottawa *via* Dalhousie
To M. SMITH.

I hope that you will bear in mind the season is now too far advanced to allow of masonry being built in common lime. If cement is used the work may go on in ordinary structures until stopped by hard frost.

S. FLEMING.

630

30th October, 1871.

[431.]

By Telegraph from Ottawa *via* Dalhousie
To M. SMITH.

When do you think you will be able to send me bill of works and schedule of quantities of works still to be done in Sections 3, 6, 9 and 15, as required by Commissioners?

S. FLEMING.

MONTREAL TELEGRAPH COMPANY.

DALHOUSIE, 2nd November, 1871.

[432.]

To P. A. PETERSON, Bathurst.

Culvert at Carter's Brook must be built according to my instructions of the 21st ult. Sandstone not fit for face work in any position.

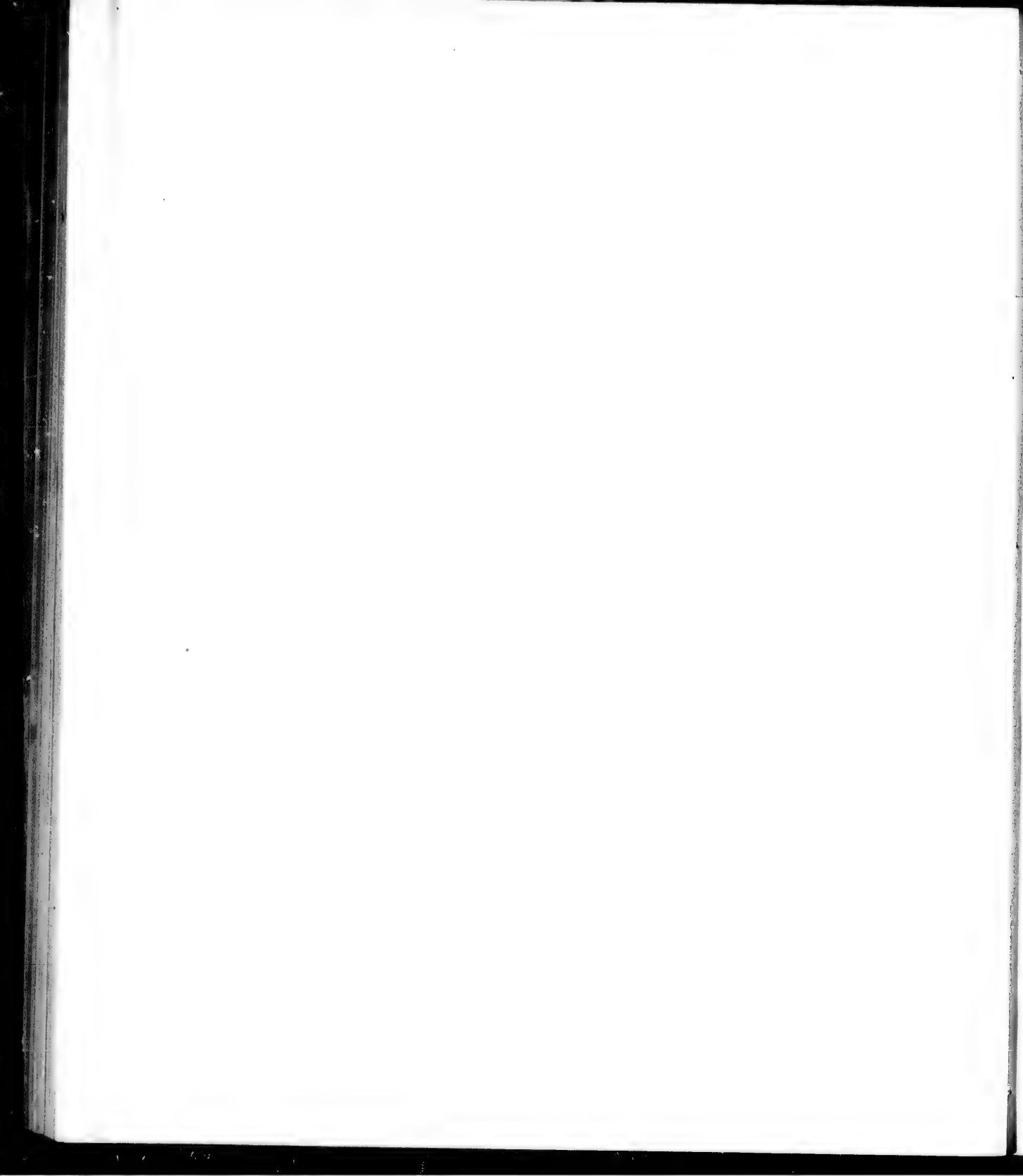
(Signed,) M. SMITH.

DALHOUSIE, 2nd November, 1871.

[433.]

MY DEAR SIR,—The Chief Engineer has telegraphed me that all masonry in common lime mortar must now be stopped for the season; and as soon as frost sets in all masonry must be stopped, except in very urgent cases when it is necessary to complete some structure and remove staging &c., before the floods in the rivers occur.

The Chief Engineer telegraphed me to send without delay the new schedule of quantities. Send me yours as soon as possible, then I shall look over it here, and if I find



650 anything wanting it can be added or corrected when I run down to Bathurst, but I cannot come down before the end of next week at soonest.

Yours truly,

(Signed,) M. SMITH.

P. A. PETERSON.

P.S.—Any masonry going on after this the utmost care must be taken to keep the cement free from freezing. Fires will have to be kept constantly round when it is mixed, and it should be well sheltered from the wind. But if a severe frost sets in, then all masonry must be *stopped absolutely*.

(Signed,) M. S.

660 [434.]

2nd November, 1871.

MY DEAR SIR—The Chief Engineer telegraphs me that all masonry in lime mortar must now be stopped for the season, and as soon as hard frost sets in masonry of every kind must be stopped. He also telegraphed for the new schedule of quantities to be sent on with the least possible delay. You will please do all you can at them, and I shall try to come down some time next week and get them finished up.

Yours most truly,

(Signed,) M. SMITH.

CHAS. ODELL, Esq.,
Division M.

670 [435.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BELLEDUNE, 3rd November, 1871.

MY DEAR SIR,—I herewith enclose the progress estimate for the past month, which will, considering the bad weather and short days, show a fair progress.

I remain, yours very truly,

(Signed,) CHAS. ODELL.

M. SMITH, Esq.,
District Engineer.

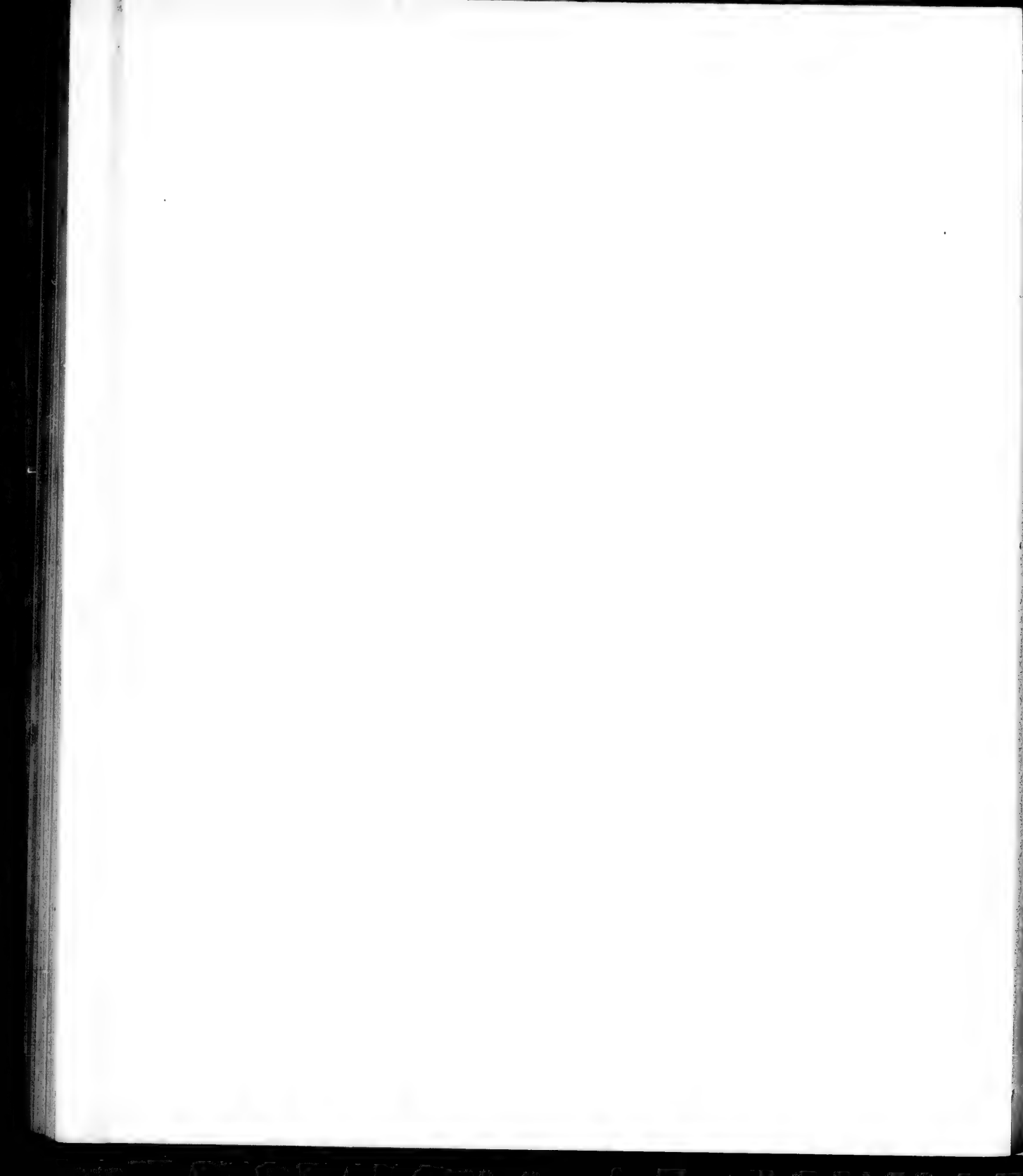
680 [436.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 4th November, 1871.

MY DEAR SIR,—I only received your telegram asking about Nipissiguit Bridge when I came in, about 7 p. m.

I was at the bridge this afternoon, and pier No. 1 is finished, so is pier No. 2; No. 3 requires 3 feet 6 inches on top to finish it. No. 4 requires 15 feet to finish it, and No. 5 requires about 27 feet; it has not yet had one course laid over the rock bottom, but is built thus:

[Sketch.]



The hatched position is what is built. The East abutment is not yet commenced. 690 The foundation is partly excavated.

No. of yards to be built in bridge, 2,076; No. of yards built 1,507, so there remains 569 yards to be built, and as 260 yards of these are in the abutment there remains 309 to be built to finish the piers.

Yours very truly,

(Signed,)

P. ALEX. PETERSON.

M. SMITH, Esq.,

District Engineer.

[437.]

INTERCOLONIAL RAILWAY,

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

BATHURST. 4th November, 1871.

700

MY DEAR SIR,—I received your letter of the 2nd inst., this morning. No masonry has been laid at the Tête-a-Gauche, Middle River, or Nipissiguit since the hard frost set in. A little has been laid at the Little River and at Carter's Brook. At the former place in the footing course of the east abutment, and at the latter in the footing course of the east side, I gave all the foremen instructions yesterday to heat all the water used in mixing cement, but even with this it is now too cold to do good work. The foreman at the Nipissiguit attempted to build some on the top of Pier No. 3 this morning, but the mortar was frozen before he could get his stone laid, so he stopped work.

The contractor talks of starting the foundation of Peter's River culvert, east abutment 710 Tête-a-Gauche, and west abutment Middle River. I do not think it would be advisable to allow him to commence any of these, as there is no certainty of soft weather of sufficient duration to carry them above high water, or above the level the water will stand in the pits.

Middle River will require concrete, and the contractor wishes to put it in without timber. I told him I thought there would be no objection to his doing so. I think you told me that in all cases the concrete should be below the level on which we intend to commence the masonry. So that, at the Middle River the 18 feet bed of concrete must be four feet below the bed of the river.

Yours very truly,

(Signed,)

P. ALEX. PETERSON.

720

MARCUS SMITH, Esq., District Engineer, Dalhousie.

[438.]

DALHOUSIE, 7th November, 1871.

To S. FLEMING,

Ottawa.

* * * * *

Section 15, Nipissiguit Bridge, two piers finished, two well advanced, and last begun. Weather softening.

(Signed,)

M. SMITH.



[439]

7th November, 1871.

730 MY DEAR SIR,—Detailed plans of the superstructure were received here nearly six weeks ago, and I immediately put them in hand to be traced, and copies sent to you and others who required them. The last time I was at Bathurst I asked you if you had got these tracings, and you replied "yes." But the matter coming up yesterday I was very much surprised and annoyed to find that Brophy could give no account of these, nor could he find from the record book that they had been sent. And as Mathews is gone, I think the best plan is to send you the original tracings down at once, which I do this day by parcel post, registered.

If you have already got them, then there is no harm done; but if not, please have tracings made of them as soon as possible and return them to me.

740

Yours most truly,

(Signed,) M. SMITH.

P. A. PETERSON, Division N.

[440.]

INTERCOLONIAL RAILWAY ENGINEER'S OFFICE.

RESTIGOUCHE DISTRICT, BATHURST, November 7th, 1871.

MY DEAR SIR,—I enclose a new schedule of quantities on the forms you sent me some time ago, also a new bill of works. The earth work is reduced nearly 17,000 yards, but nothing has been allowed for slopes running out, &c., except the 10 per cent.

The quantity of work to be done is taken from embankment, as the embankment in every case, except at the Nipissiguit, is in excess. I have made up the total amount of
750 excavation as in the original, by adding to the embankment to be done the amount of excavation in "*catch-water drains, stream diversions, inlets and outlets to culverts*;" also "*excavation in foundations*." Now, the greater part of both these items will be put in the embankment, and so should not be added to it to make the gross amount. Of course the cost of these items is greater than common excavations, perhaps double as much, and for this reason it might be added to the embankment. We are still building masonry at all the places, using hot water and taking care that no stones are laid when it is cold enough to freeze the mortar. I have just come in from the Nipissiguit Bridge. I found the work going on well, and no signs of freezing about the cement.

Yours very truly,

760

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,

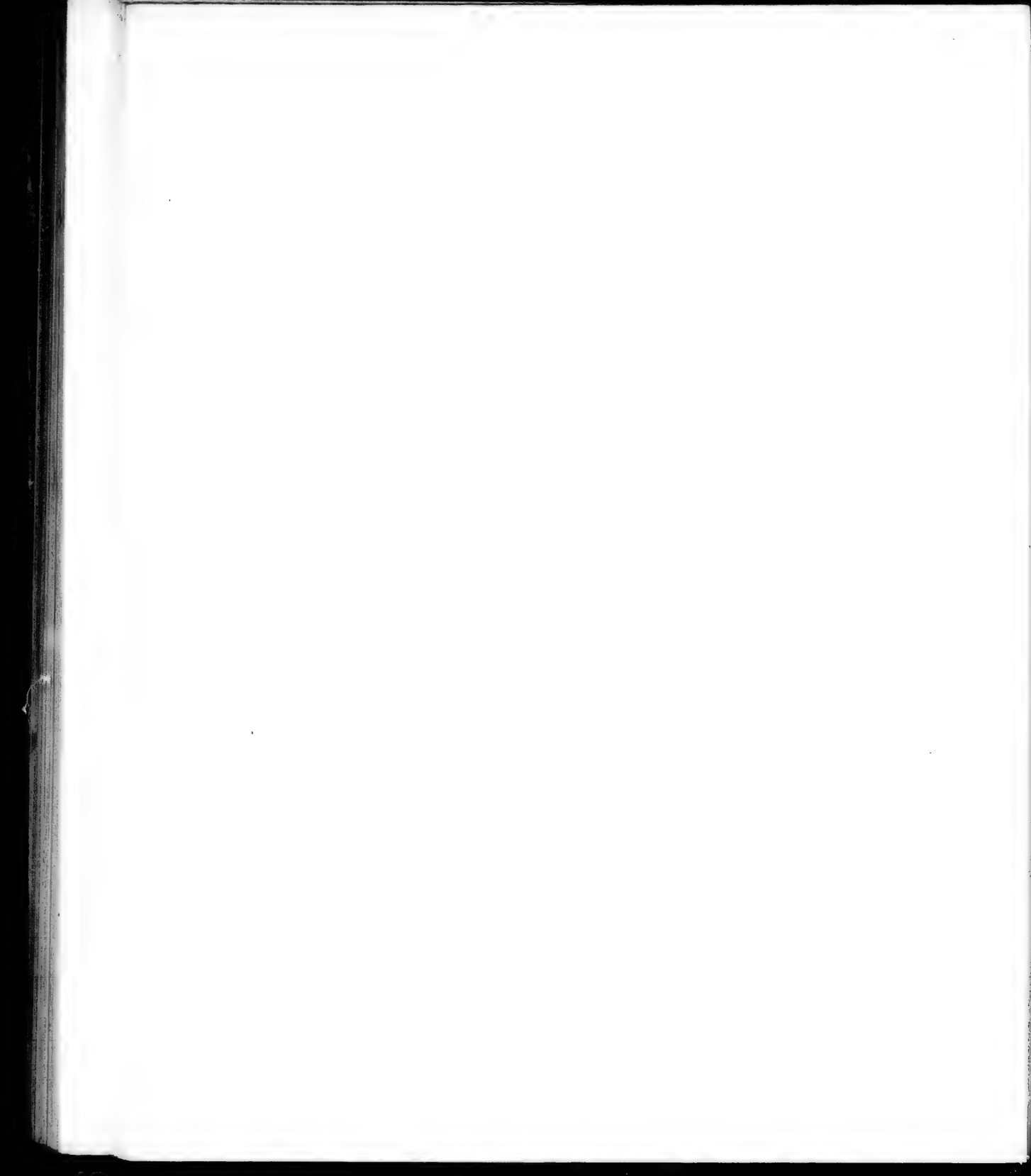
District Engineer, Dalhousie.

[441.]

INTERCOLONIAL RAILWAY ENGINEER'S OFFICE.

RESTIGOUCHE DISTRICT, BATHURST, November 8th, 1871.

MY DEAR SIR,—Masonry is still going on very well, but I am not at all certain that I should allow the east abutment of the Tete-à-Gauche Bridge, and the west abutment of the Middle River Bridge, to be commenced at this late season. Water is being pumped out at



both places to-day, preparatory to further excavation. There was ice three inches thick in both pits to-day. The contractor is drawing stone to Peter's River, to commence 770 masonry there this season.

Yours very truly,

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
District Engineer, Dalhousie.

[442.]

MONTREAL TELEGRAPH COMPANY,
DALHOUSIE, 9th November, 1871.

To C. ODELL, Madisco.

Bertrand wants to put in culvert at Station 736 and two or three courses at 994. If weather continues mild you may allow this, but cement only must be used in both cases, 780 and every care taken to keep it from freezing. Instruct the Inspector to watch the work closely.

(Signed,)

M. SMITH.

[443.]

MONTREAL TELEGRAPH COMPANY,
DALHOUSIE, 9th November, 1871.

To P. A. PETERSON, Bathurst.

Bertrand is anxious to get in a few courses of masonry this season at Peter's and Middle River. If he has everything ready and the weather continues mild, you may allow this, but the best cement only must be used, and every care taken to keep it from freezing. The Inspector must watch the work closely.

790

(Signed,)

M. SMITH.

[444.]

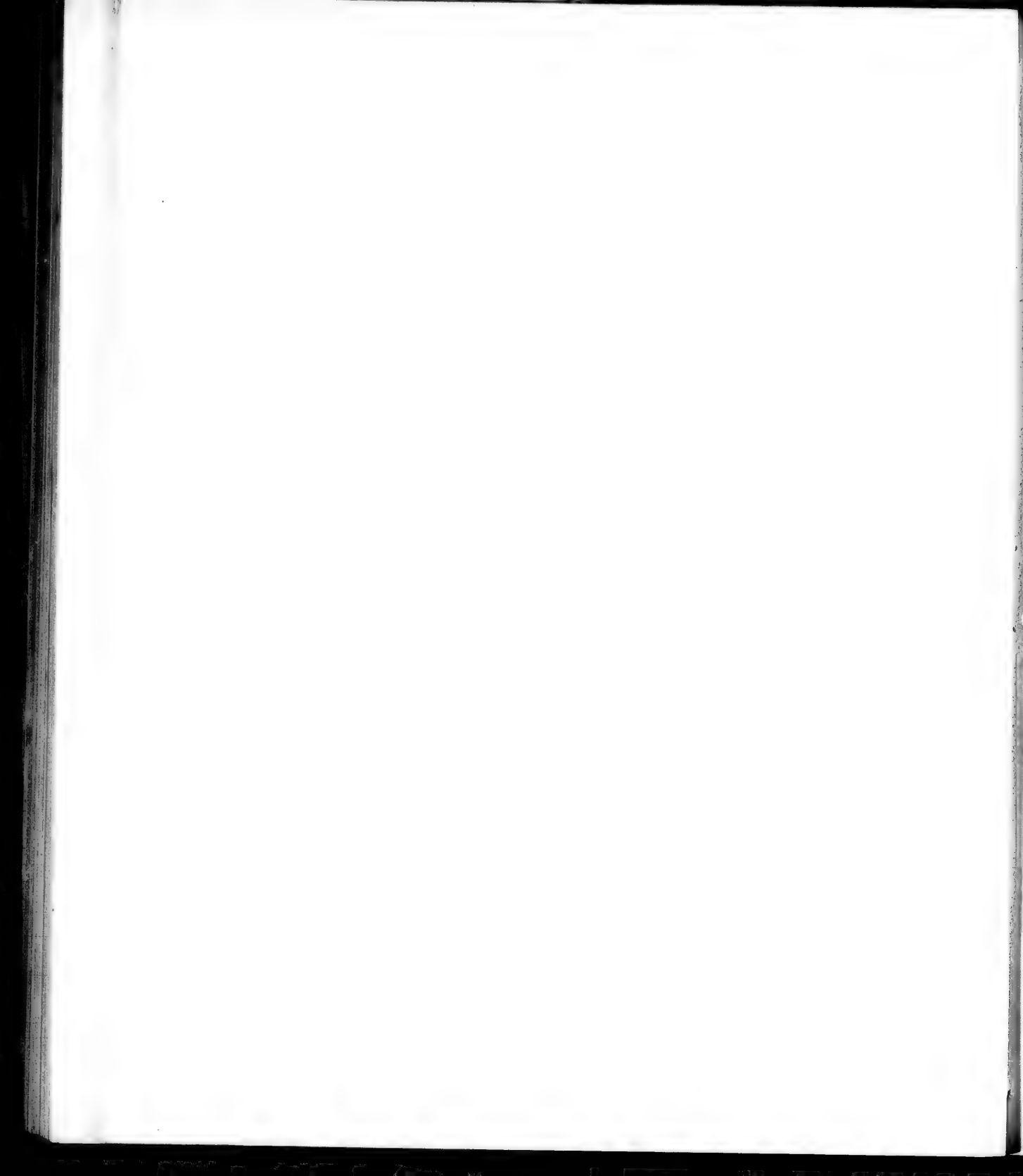
9th November, 1871.

MY DEAR SIR,—I have glanced over your revised schedule of quantities and the only things that struck me as requiring explanations are as follows:

Cutting,—198 to 208. It is not likely that they will be able to carry any of the material from the cutting over the Tête-à-Gauche bridge, in which I estimate there will be over 8000 cubic yards to spoil from this cutting, this should be added to the total quantity as they will have an equal quantity to borrow on the other side of the river, unless this cutting can be reduced from 2ft. to 1½ft. in which case there would perhaps not be any spoil.

800 *Masonry*,—I see you have left out culvert at 296.20. If this is done then the culvert at 312 will have to be 2½ft. by 4ft. but I think it better to let culvert stand at 296 + 20 at present, as the Chief Engineer is very averse to long drainage between culverts.

Foundations,—You have allowed \$2,500 for this. Is that enough?



Bridge Superstructure.—I see you have put in the iron superstructure, and at the end of the line, two spans of 10 ft. which are for beam culverts, but there is a beam culvert at 286 + 50 of 8 ft. span. Please let me know by return what you think of these things?

Yours most truly,

(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
810 Division N.

[445.]

• INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 10th November, 1871.

MY DEAR SIR,—In all the estimates we have made of the quantities it has always been taken for granted that the surplus in the cutting 198 to 208 would be carried over the bridge.

In the original quantities this surplus amounted to 20,150 cubic yards, and I do not think this will be changed in the revised schedule. I cannot find the new schedule just now and I have not time before the mail leaves to hunt up Mr. McLaughlin. We have 820 just returned from the Nipissiguit where we have been setting work. I will telegraph you the exact quantity to-morrow morning. I do not think the slope can be reduced one-half to one.

Masonry.—The culvert at 296.20 being left out would not necessitate an increase in the size of the culvert at 312, the water from 296.20, if the culvert is not built, will pass down the north side of the line, and if built will pass through Mr. Ferguson's arch at 296.20. The waters run southward.

Foundations.—I left this amount, \$2,500, at the same figure as the Chief Engineer had it in his prices. I think it will be enough for what is to be done now.

Bridge Superstructure.—The two spans of 10 ft. should not be in the iron bridge 830 superstructure which will be 1,480 ft. and beam culvert 28 ft. I left out the 8 ft. span as it is no more than a cattle guard, and it is to be used as a cattle guard.

Concrete.—Make concrete 425 yards as none will be required at the east abutment of Tete-à-Gauche and Nipissiguit Rivers.

Yours very truly,

(Signed,) P. A. PETERSON

MARCUS SMITH, Esq.,
District Engineer, Dalhousie.

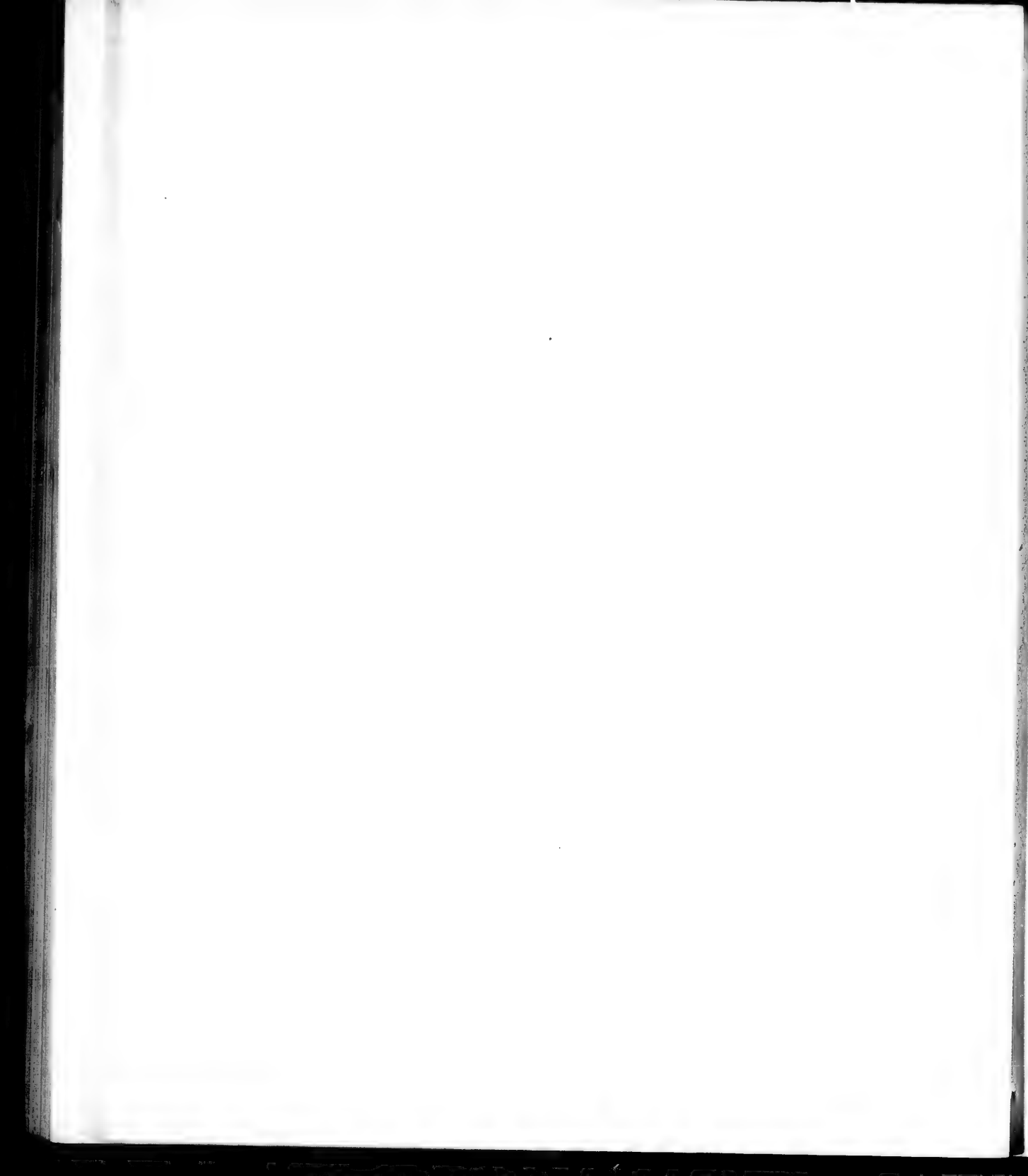
[446.]

11th November, 1876.

By Telegraph from Bathurst,
840 To MARCUS SMITH.

Surplus in cut to be hauled over bridge is fifteen thousand yards.

(Signed,) P. A. PETERSON.



[447.]

MADISON, 11th November, 1871.

DEAR SIR,—We beg to ask you the favour of pointing a day and hour on which our Superintendent of works on Section 9 could meet you on the upper end of Section 15, so as to receive your instructions concerning the earthwork which is now going on.

We remain, Dear Sir,

Yours very truly,

(Signed,) J. B. BERTRAND & CO.,
per J. A. TURCOTTE.

850

P. A. PETERSON, Esq.,

Division Engineer, Section No. 15.

[448.]

MONTREAL TELEGRAPH COMPANY,

DALHOUSIE, 13th November, 1871.

To CHAS. ODELL, Bathurst.

Send on at once your revised schedule of quantities.

(Signed,) M. SMITH.

[449.]

INTERCOLONIAL RAILWAY.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 14th November, 1871.

860

DEAR SIR,—Herewith, please receive certificates in duplicate, (red and black) for the month of October.

The amounts for Contracts 13 and 14 are calculated at new rates, based on recent returns of quantities, giving the contractors the benefit of all reductions in work to date; which rates are to be established by Order in Council.

The amounts for Contracts 3, 6, 9 and 15 were furnished you before the receipts of returns from resident Engineers. The work done for October was assumed to be the same as September, the object being to accommodate the contractors, who were particularly anxious to transmit money, to pay men, &c., by the last Gulf Steamer from Quebec.

870

(Signed,) SANDFORD FLEMING,

Chief Engineer.

RALPH JONES, Esq.,

Secretary.

[450.]

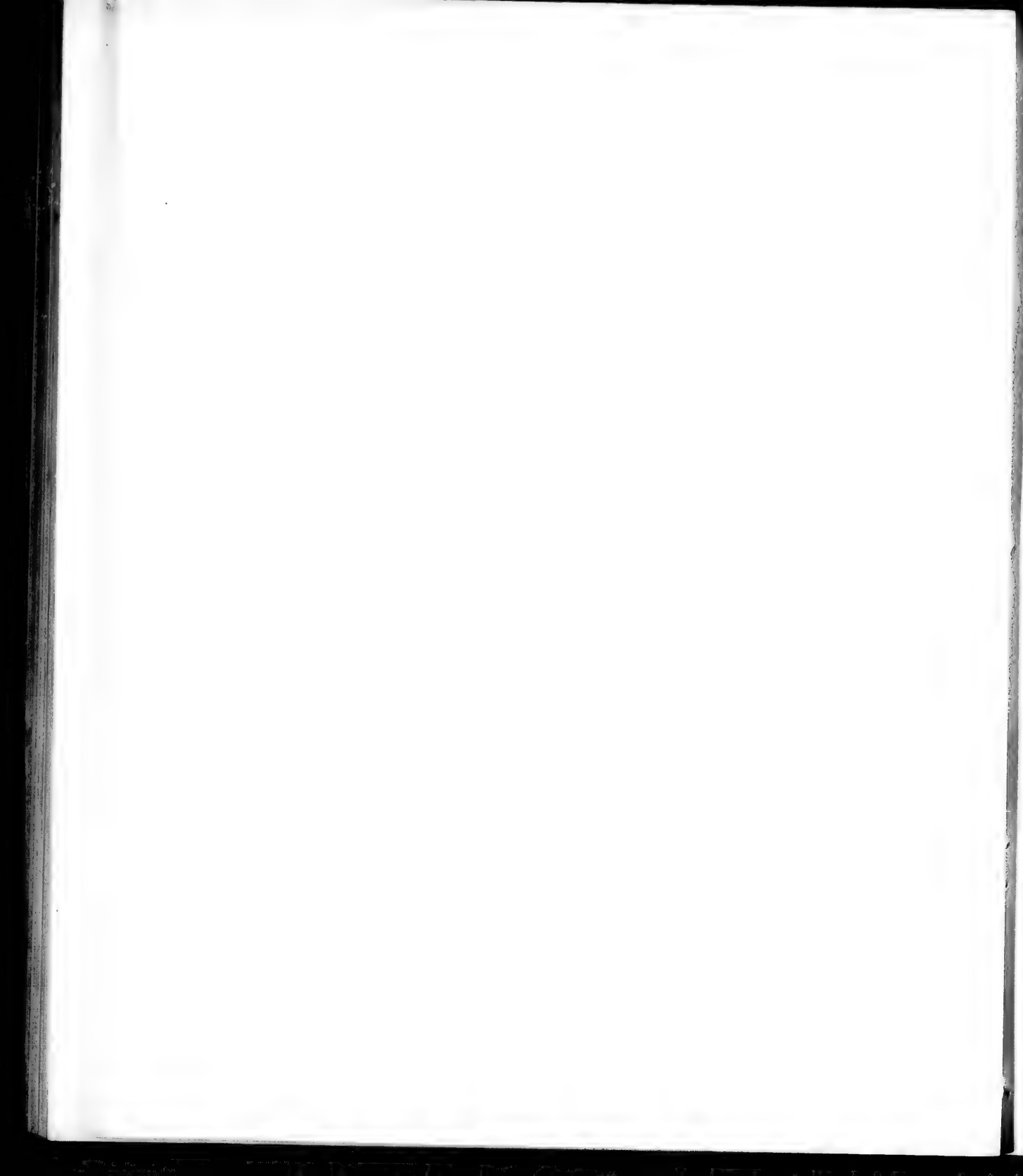
14th November, 1871.

By Telegraph from Ottawa

To M. SMITH.

When do you think returns of work still to be done on 3, 6, 9 and 15 will be ready? Frequent enquires made for them.

S. FLEMING.



880 [451.]

MONTREAL TELEGRAPH COMPANY,

DALHOUSIE, 14th November, 1871.

TO SANDFORD FLEMING,
Ottawa.

Revised quantities ready in two days. Contractors complain bitterly of this being done now. They did not want it till close of building season; very little change except in masonry.

(Signed,) M. SMITH.

[452.]

INTERCOLONIAL RAILWAY,
ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,
DIVISION M, CONTRACT NO. 9.

890

BATHURST, 14th November, 1871.

MY DEAR SIR,—I herewith enclose the new schedule of quantities, showing the amount of work done, and remaining, up to the 31st October, ultimo, on my Division.

I have had the quantities of both rock and earth work for the grading of the road taken out anew, according to the levels for the setting out of the work in the *Green Book*.

You will perceive that the rock has been considerably reduced and the earth increased, which arises from many cuttings that were estimated as rock having a considerable proportion of earth in them; also from the various alterations in the grades since the original quantities were taken out.

900 The masonry has also been materially reduced owing to a number of the structures having been abandoned (the arch culvert at Armstrong's Brook alone amounting to 2,740 cubic yards,) and also from the alteration in the size and form of many of those remaining.

I find the allowance for foundations in the old schedule was on a very large scale, as all ours so far have proved.

I have entered the catch-water, inlets and outlets, &c., as near as possible; also the farm bridges, cattle guards, &c.

The clearing and grubbing, and fencing, &c., I have left according to the old schedule which is as near as I can estimate it.

910 As to concrete we have not put in some four cubic yards at the pier in Belledune River; and I am not aware that we shall require any more on the contract, so far as I can judge from the foundations already taken out, and the nature of the ground where the remainder are to be placed.

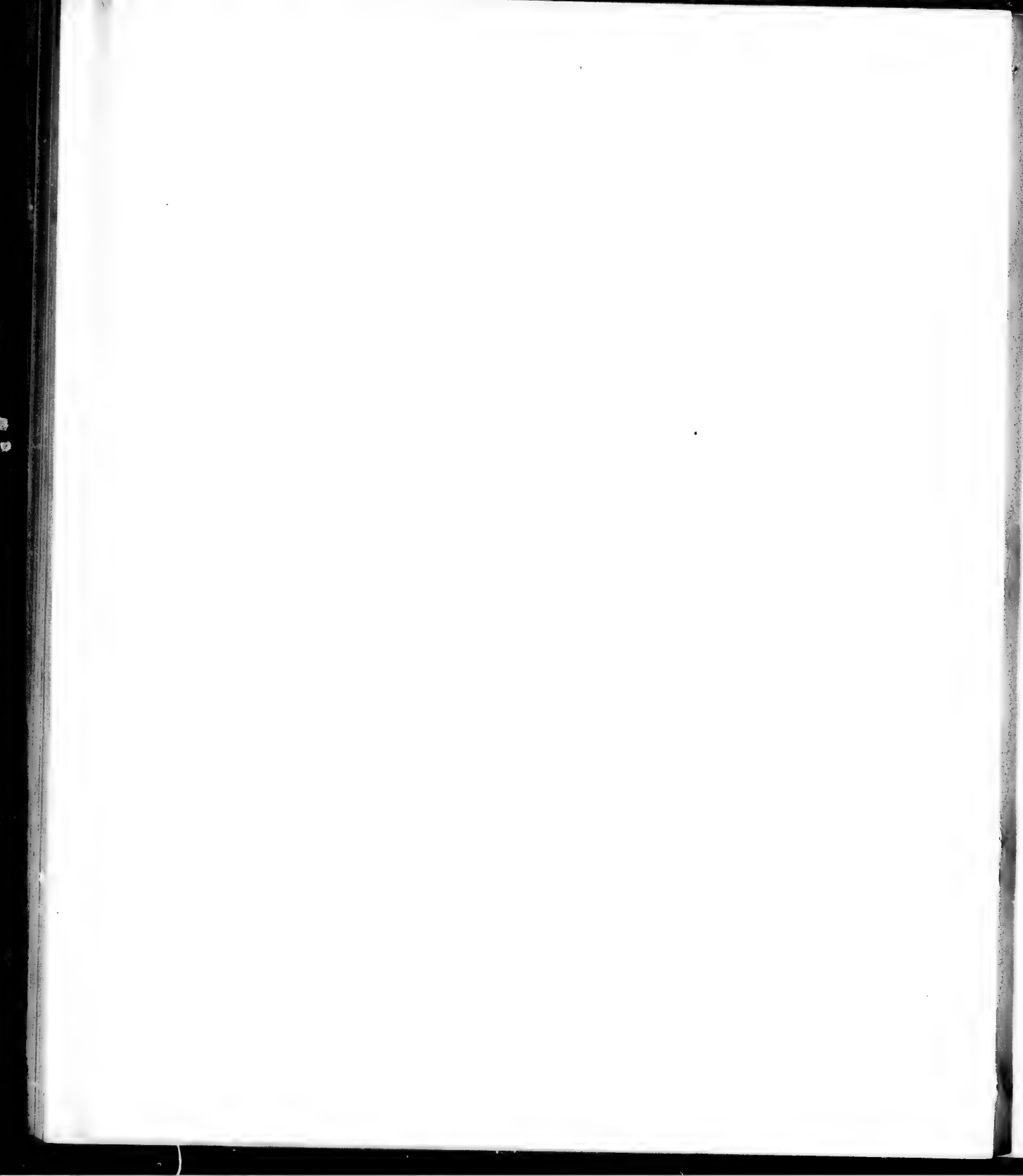
I believe I have entered everything that the Chief Engineer required, and trust that it will prove satisfactory both to yourself and him.

I remain, yours very truly,

(Signed,)

CHAS. ODELL,
Division Engineer.

MARCUS SMITH, Esq.,
District Engineer.



920 [453.]

DALHOUSIE, 16th November, 1871.

MY DEAR SIR.—I have mailed by parcel post (registered) this evening, a revised schedule of quantities for sections 3, 6, 9, and 15. We have taken a great deal of care with these, and I believe they are as close an approximation to the true quantities as it is possible to arrive at, at this stage of the work. There can scarcely be any changes in the masonry, except what may arise from variation in the depths of foundations.

It is more difficult to arrive at a very close approximation in the earthwork, as almost in every case the quantity in embankments exceeds that in the cuttings, the estimated percentage for subsidence being little more than a good guess; in some places where we allowed 15 per cent. we have found it too little, and in others where we allowed only 10
930 per cent. it turned out to be too much. At the end of each schedule of masonry I have given a statement showing to what cause the change in the quantities is due, but this can only be regarded as approximate, for to arrive exactly at what is due to the substitution of iron for timber superstructure, it would be necessary to have a plan drawn for each in the same position in which the bridges are now built or laid out. By far the greatest reduction has been made in the quantities by increasing the numbers and length of spans, and thus throwing the abutments high up the sides of the ravines—this is especially the case in section 9.

I have made out a schedule of rates and attached it to the others—this, of course, is only to show proportionate rates for each class of work, according to the best of my
940 judgment, and in some measure, to assist you. They will, of course, have to be reduced to cover the timber superstructure (timber), which the contractors are now relieved of, and which amounts to about \$100,000 on these four sections.

You will observe that in section 3 the total amount of work in both contracts (Grant, Elliott & Co., and Messrs. Berlinguet & Co.) is given in one column, and the total amount done by both contractors, in the next, and the third column shows what is still to be done.

The two contracts are separated at the end of the schedule. In section 6, the two contracts are separated in detail, which requires two more columns. Had I had time and assistance I should have had section 3 done in the same manner. If you think it the best way you can easily have it done from the printed schedule, which gives Grant, Elliott & Co.'s
950 work in detail.

I think the schedules now sent are so nearly correct that the contractors might be paid by them, as they each group without any other measurements—I mean the earthwork. There will, of course, be a correct record kept of the masonry.

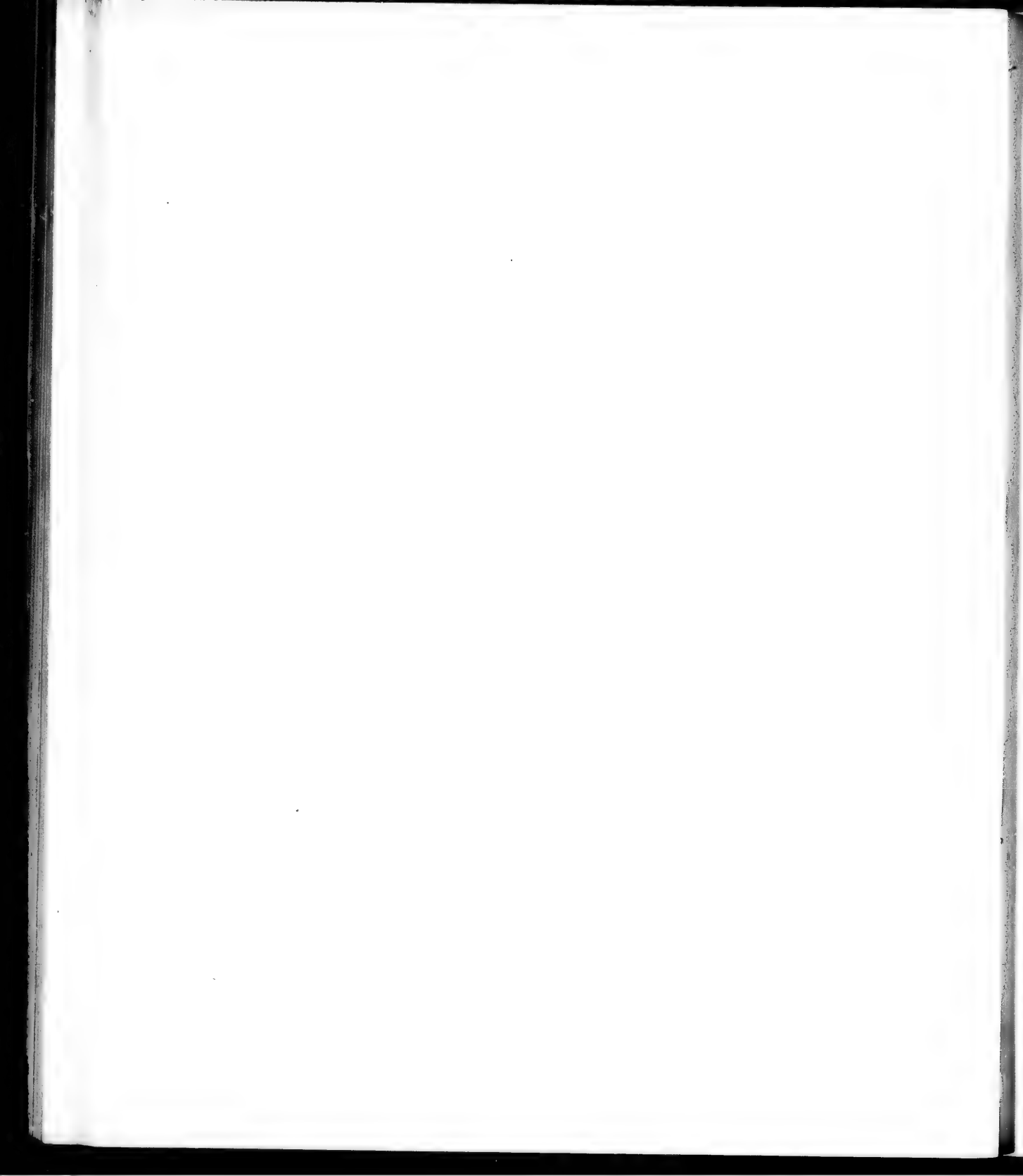
Yours most truly,

(Signed,) M. SMITH.

P.S.—I have just discovered a mistake in the schedule of rates, section 9, where I have left out the tunnel at Armstrong's Brook; please substitute that herewith.

(Signed,) M. S.

SANDFORD FLEMING, Esq., Chief Engineer.



60 [454.]

MONTREAL TELEGRAPH CO.

DALHOUSIE, 16th Nov., 1870.

TO CHAS. ODELL,
Bathurst.

Have you made any allowance in quantities for subsiding and trimming off embankments.

(Signed,) M. SMITH.

Answer immediately.

[455.]

DALHOUSIE,, 16th Nov., 1871.

By Telegraph from Bathurst
970 To M. SMITH.

Have added ten per cent. to all embankments except one or two instances where they are cutting rock, nothing more.

(Signed,) CHARLES ODELL.

[456.]

DALHOUSIE. 1th Nov., 1871.

MY DEAR SIR,—I think there must be something wrong in the quantities.

Stations 72 + 25 to 761 + 88, you give, rock.....	8,019
“ “ earth.....	3,611

Total.....	11,630
------------	--------

980 I make embankment from 724+25 to 744...	5,000
Cutting 746 to 759, if all rock.....	11,600

Total.....	16,600
------------	--------

I believe the embankment 724+25 to 744, was made from side ditches, in which case the total would be at least what I make it if cutting were all rock; but if some of it were earth, then the total quantity would be more than I make it. I know that a great part of this cutting is run to spoil, and this, I suppose you have put in monthly returns. Please look at this and send me quantities in detail from 724+25 to face of west abutment, and how the quantities were disposed of, and if any of the large cutting went to make up the bank between 724+25 and 744. and how much.

990

Yours truly,
(Signed,) M. SMITH.

CHAS. ODELL, Esq.,
Division M.



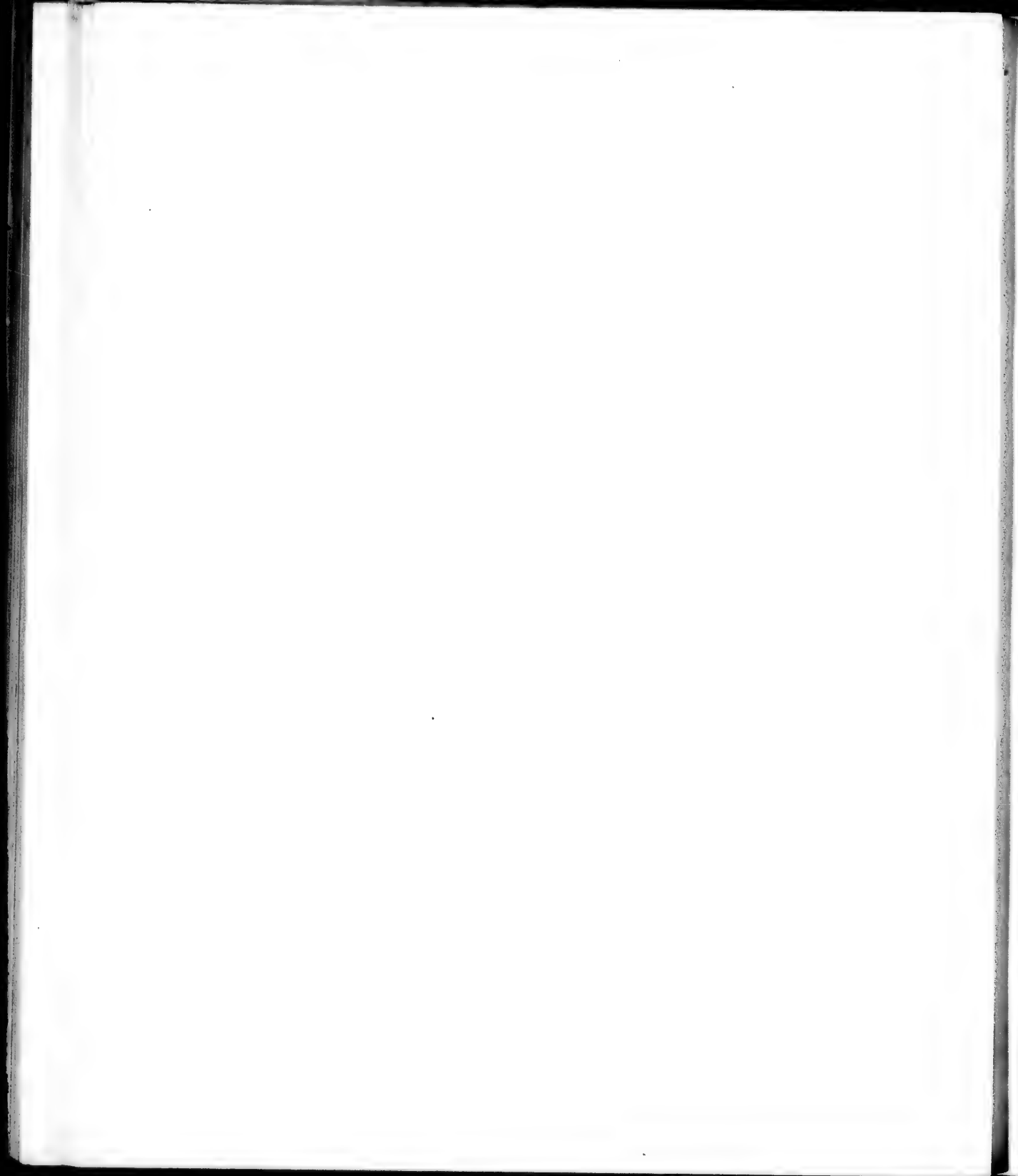
[457.]

DALHOUSIE, November 18th, 1871.

MY DEAR SIR,—I have just received your telegrams asking me to give my views as to the minimum staff of Engineers, and Inspectors, &c. As to the former, seeing that it was reduced to the minimum at the end of last year and filled up again in the spring, as promised (except on Section 3), I don't see that it is possible to make any reductions before the end of next summer, without detriment to the works and loss to the Government, 1000 by protracting the period of their completion. There will, or ought to be, more works going on between this time and the end of next summer than there has been at any time since the contracts were let, and consequently more work for the Engineers. It must also be borne in mind that the labours of the Engineers on the Intercolonial Railway are much heavier than on railway or engineering works generally. First, the country (on this district at least) is very rough, and for the most part greatly inclined across the line of railway, so that an immense number of cross-sections are required; and on the majority of the cuttings cross-sections have to be made with the level every month to get the measurements for monthly progress reports. Also many, if not the whole of the Contractors on this district, have had no previous experience in the construction of such works, and they 1010 freely confess that they find it almost impossible to get experienced men to superintend their works; consequently, although they have far more than the usual number of foremen, there is not one, out of two of them, that can look a week ahead to provide for carrying on the works regularly and systematically. This is notoriously the case as regards the masonry—they work from hand to mouth, and there is always some gang waiting for some other, or for a supply of stone, &c. The engineers have been incessant in pointing out to the contractors where their arrangements were defective, and making calculations for them and giving them advice. I can bear witness to their zeal in using every endeavour to push on the work. In a word, they have been as foremen to the contractors, and a great deal is due to them for the large amount of work that has been 1020 done on the four New Brunswick sections. Only for their advice, and pointing out to the contractors where they were getting behind, I am sure there would not have been near as much work done as there has been, and a great deal of this has been done at their own cost out of their salary, for since their appointment the cost of living, horse keep, &c., has been fully doubled, and will be higher still next year. The *esprit de corps* has alone kept them to their work. They take a pride in it; but to ask them to do more than they have done, by weakening the staff, is more than they could bear. As for myself, I think I have been eight times over the whole district since the 1st of May, besides seeing every foundation of importance (except one when we were all engaged last week with new schedule of quantities.) They made a sad mess of a foundation at Christopher's brook, which will all 1030 have to be taken up again. Also on other parts mischief was done, and that one week's absence of the Engineers from their work could not be estimated at less than \$10,000 damage to the Government, for on the Government all must ultimately fall.

Section 17 (G.)

The Engineers have used every spare hour of their time making cross-sections where deviations have been made. There will be three months work in the winter plotting these and getting out quantities from the same for revised schedules.



Section 18 (H.)

The same remarks as for the above, only that the cross-sections are far more numerous and tedious enough to employ the staff fully during the winter.

1040

Section 19 (I.)

The staff consists of Engineer in charge and one rod-man. Further reduction impossible.

Section 3 (K.)

This is the only section on my district that has a full staff, but is 24 miles long, and the contractors intend to keep as large a force as possible all winter at rock cutting, quarries, stone cuttings, &c. Towards the end of February one of the assistants (Mr. Harris) might come into the office at Dalhousie, till the middle or end of May, and assist us as draughtsman, as he did last winter. I intend, if possible, to have all the drawings of structures completed this winter.

1050

Section 6.

The staff consists of Engineer in charge, one assistant, and one second assistant. Rod-man left last June; none appointed in his place. Further reduction impossible.

Section 9.

Engineer in charge, one assistant, and two rod-men. Nearly all the work to do are rock cuttings. Will be a large force all winter.

Section 15.

Engineer in charge, one assistant, two rodmen; will be a large force all winter, and a great deal of quarrying and stone cutting. Staff cannot be reduced.

Dalhousie Office.

1060 Only one draughtsman (Mr. Brophy) there last two months. Brophy talks of going. Work in office greatly behind. Want a good office clerk, who can write a good hand and trace drawings; also one who can draw and get out quantities. I wish to go over and check all the quantities, if possible, in this office this winter, independent of division engineers.

Inspectors of Masonry.

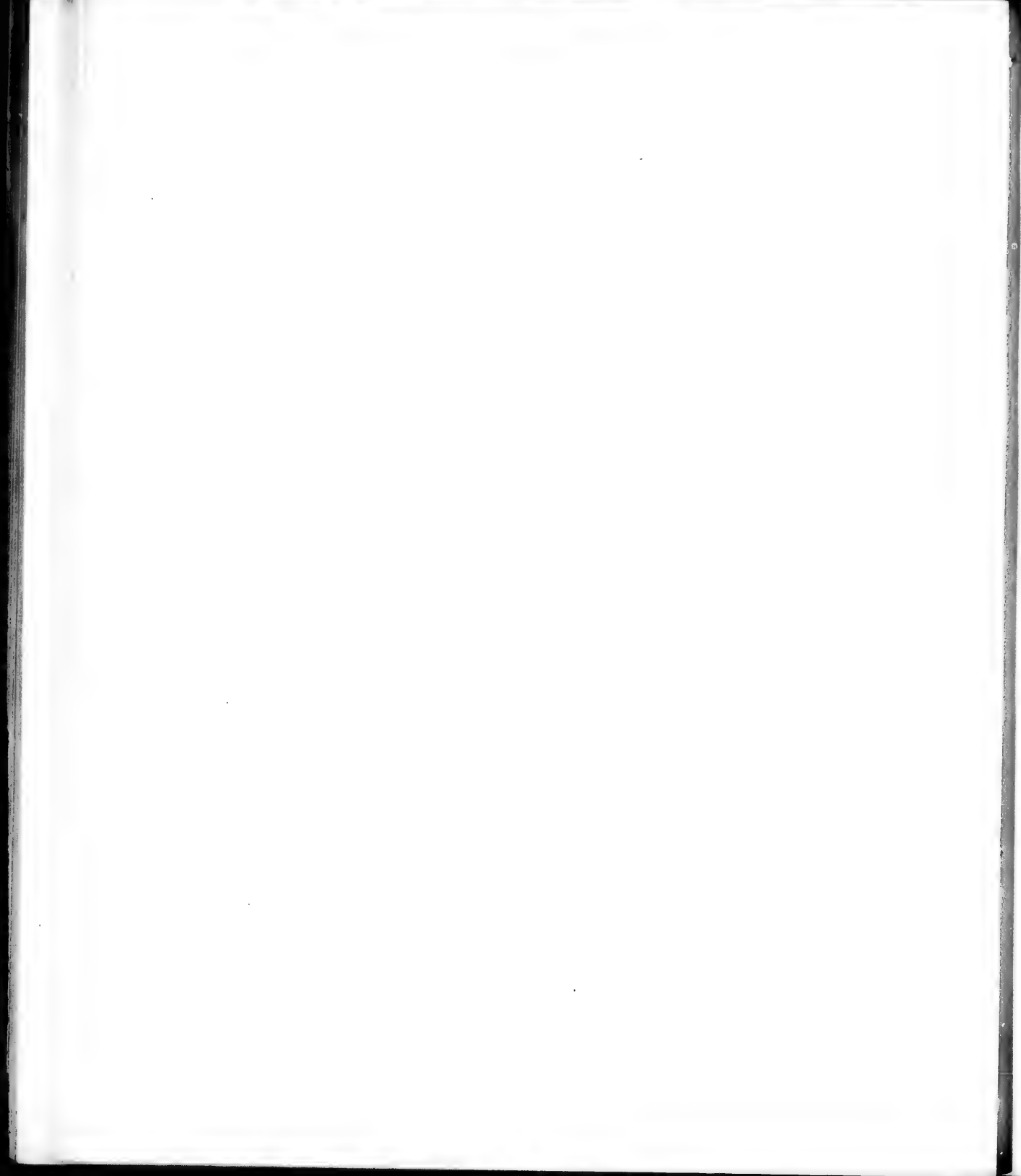
Holmes, at Metapedia; Sutherland, at Jacquet River, (section 6), and Fotheringham, at Bathurst, are all that need be retained during the winter. It would be good policy to retain them, not only on account of seeing that the stone were cut properly, but to instruct the contractor's men to get the proper quantity of stone of each course (or thickness.)
1070 More delay has arisen from want of this knowledge than anything else, fully *one-third of the cost of masonry* arises from masons kept waiting for stone. No amount of reasoning will cure the contractors of this fault. There must be men on the spot to see it done.

Yours most truly,

(Signed,) M. SMITH.

SANDFORD FLEMING, Esq.,

Chief Engineer Intercolonial Railway.



[157.]

MADISCO, 18th November 1871.

DEAR SIR,—We beg leave to inform you that we will be ready, on Monday 20th instant to commence work at culvert this side of Nigadoo. Will you be good enough to send 1080 plan at your earliest convenience and set centre line for same, and by so doing oblige yours very respectfully.

(Signed,)

J. B. BERTRAND, & Co.

Per J. A. TURCOTTE.

CHAS. ODELL, Esq.,

Division Engineer,

I. T. C. R. Section 9.

[158.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

DIVISION M, Contract No. 9.

BATHURST, 20th November, 1871.

1090

MY DEAR SIR,—I herewith give you the information asked for in your letter of 16th ult., which I only received on my return home Saturday, having been engaged on the line the previous day are two.

I find on examining the quantities taken from actual measurement for progress estimates, that the six feet berm on top of rock had been omitted in a portion of the west end of cutting from 746 to 750. I have gone over the quantities anew, and they stand as follows :—

	Embankment.
724+25 to 744.....	5,785 c. yards.
1100 of this 4,510 is made up from cutting east of 744, there being no side ditching at all.	
	excavation.
From 744 to 759.....	Rock 7,581 Earth 5,030.
	Embankment.
From 759 to 760+60.....	3,160 c. yards.

I trust you will find this explanation satisfactory.

I remain,

Yours truly,

(Signed,)

CHAS. ODELL.

MARCUS SMITH, Esq.,

1110 District Engineer.

[159.]

November 25th, 1871.

By Telegraph from Ottawa

To M. SMITH.

Schedules received. Referring to section nine, I observe rock borrowing was originally 60,000, now it is 160,000 odd; can you say how much of this is still to be executed. Please explain. Referring to section three, I read the returns as if iron pipes done and to be

done are converted into second class masonry. There are twenty-one pipes in all. Could you telegraph actual masonry, concrete, and length of pipes in each case. Suppose pipe culverts being converted into masonry, concrete found there is not included in your item concrete.

1120

S. FLEMING.

[460.]

MONTREAL TELEGRAPH COMPANY.

DALHOUSIE, 25th November, 1891

To S. FLEMING,

Ottawa.

Last pier of Nipissiguit Bridge built to top of cut water, and east abutment commenced. First pier of Jacquet River built to above high water level.

(Signed,) M. SMITH.

[461.]

27th November, 1871.

By Telegraph from Ottawa,

1130

To M. SMITH.

According to recent returns, Section nine, I find between Stations 569 plus 35, and 813, total filling 125,196, of which is done 72,616, leaving balance of 52,580. Is not this the rock borrowing, or long haul, still to be done, corresponding with the item of 60,000 rock borrowing in printed schedules? We have a price authorized by Council for the latter, namely fifty-five cents, and it is advisable to adhere to it. If I am correct, would not contractors be entitled, on work done, to 7,420 at borrowing price, instead of earth price? Respecting tunnel at Armstrong's Brook, do you know the length of barrel, and sub-contract price? Is the rock soft so that masonry lining may be expedient?

(Signed,) S. FLEMING.

1140 [462.]

MONTREAL TELEGRAPH COMPANY.

DALHOUSIE, 27th November, 1871.

To S. FLEMING,

Ottawa.

* * * * *

Section 9—Excavations classed as closely approximate as can at present be ascertained. Hitherto there has been very little rock borrowing, as they have found pockets of gravel and loose rock. The two rates were to cover long haul and hard material, which costs more than common earth. But it would be better to have only one rate and a larger sum for contingencies, to cover rock borrowing and masonry at ends of tunnel, Armstrong's

1150 Brook.

(Signed,) M. SMITH.

[462.]

MONTREAL TELEGRAPH COMPANY,
DALHOUSIE, 27th November, 1871.

TO S. FLEMING, Ottawa.

Printed schedule gives probable rock borrowing or very long haul between Stations 580 and 790, estimated at 60,000 yards, but as stated in my telegram to-day very little of either has been required between these points, though there is a quantity of shale there, and outside of these stations very difficult to estimate separately, but you will make a very fair return if you enter the work done of that class in the same proportion as the other, viz., divide the earth excavation done in two portions, and let the one bear the same ratio to the other as the total earth excavation in Section bears to 60,000. The longest hauls, as you will see on the profile, are not between the Stations 580 and 790.

Length of tunnel at Armstrong's Brook, 170 feet, sub-contract price, \$20.

M. SMITH.

[463.]

DALHOUSIE, 28th November, 1871.

MY DEAR SIR,—By order of the Chief Engineer, all masonry in mortar or cement and concrete in foundations must positively be stopped for the season.

It is a pity the overhead bridge at Station 285 had not been started before. Bertrand will have to put a temporary bridge over the gullet a little to one side of the site for the Government bridge, unless it were practicable to build the masonry dry, which would require the stone to be better prepared in the bed than otherwise would be required. You will, of course, make the end spans of the bridge drop 1 in 20, but even then the end piers will be a considerable height; I fear too high for dry masonry, unless the piers, or walls, were made thicker—very good stones laid dry with a good coping to hold them together might possibly do—or taking advantage of moderate weather, they might be pointed some distance down from the top and hot grout run in at the top before coping was put on; but a temporary bridge would be the best, and would not cost much.

Yours truly,

(Signed,)

M. SMITH.

1170 P. A. PETERSON, Esq.,
Division N.

[464.]

BATHURST, 29th November, 1871.

DEAR SIR,—Would you please let us have the plan of the over road bridge of Tete-a-Gauche Road as soon as possible, as we are now prepared to build.

In haste, yours truly,

(Signed,)

J. B. BERTRAND & CO.,
per W. H. NESBITT.

P. A. PETERSON, Esq., C. E., Bathurst.

1180 [465.]

INTERCOLONIAL RAILWAY,
CHIEF ENGINEER'S OFFICE.

OTTAWA, Nov. 29th, 1871.

DEAR SIR,—I have within the last day or two received from the District Engineer returns of work still to be done on Contracts 3, 6, 9, and 15, and I now submit estimates of the value of the work remaining to be done, calculating these quantities at the rates referred to in Order of Council, of date July 27th, 1871, being those at which recent certificates have been computed.

1190 I should observe that while these estimates embrace the item bridge superstructure, calculated at the contract price for wooden bridges, in accordance with the items of Order in Council, June 13th, 1871, they exclude all reductions that have been effected in masonry by the substitution of iron for wooden bridges, and also all reductions in every kind of work effected by changes in location and in grades, and also all saving effected by the substitution of tunnels or iron pipes, or the omission of structures or changes in this size, and they are intended to show exactly the actual work now contemplated as necessary to be done.

I enclose also abstract of quantities for each section, showing in parallel columns the quantities still to be done, Nov. 1st, 1871, the quantities executed to same date, the total quantities done, and to be done and also the total quantities as exhibited in printed schedules. If complete details are required I shall be very happy to furnish them.

I am yours, &c.,

SANDFORD FLEMING.

1200

RALPH JONES, Esq.,
Secretary.

[466.]

INTERCOLONIAL RAILWAY.

CONTRACT No. 9.

ABSTRACT OF QUANTITIES.

DESCRIPTION OF WORK.	Total quantities as in printed schedule.	Total quantities as revised. See letter from Dist. Engr., dated Nov. 16, 1871.	Quantities executed to Nov. 1st, 1871.	Quantities still to be done, Nov. 1st 1871.
Clearing, &c.....Acres	491	500	362	138
Fencing..... Linl. ft.	227,500	225,000	9,000	216,000
Rock Excavation.....Cub. yd.	82,000	66,960	40,868	26,092
Earth Excavation	60,000) 422,000 }	460,920	220,339	240,581
1210 Under Drains Linl. ft.	5,400	6,500	Nil.	6,500
Riprap. Cub. yds.	800	1,200	Nil.	1,200
Concrete "	300	100	Nil.	100
1st class Masonry..... "	6,300	3,516	1,154	2,362
2nd class "	6,700	3,684	2,315	1,369
Paving. "	880	898	314	584
Foundations..... Dollars		\$ 500	Nil.	\$ 500
Bridge Superstructure	"	Timber spans at contract rates.		4,320
Beam Culvert Superstructure....	"	681	Nil.	681
Road Crossings and Diversions. "		6,775	1,262	5,513
1220 Special Works..... "		12,000	Nil.	12,000

[467.]

INTERCOLONIAL RAILWAY.

CONTRACT No. 15.

ABSTRACT OF QUANTITIES.

DESCRIPTION OF WORK.	Total quantities as in printed schedule.	Total quantities as revised. See letter from Dist. Engr., dated Nov. 16, 1871.	Quantities executed to Nov. 1st, 1871.	Quantities still to be done, Nov. 1st, 1871.
Clearing, &c.....Acres	150	152	114	38
Fencing.....Linl. ft.	122,500	128,500	7,790	120,710
Rock Excavation.....Cub. yds.	6,500	6,472	3,714	2,758
Earth Excavation....."	630,000	628,000	201,000	427,000
Under Drains.....Linl. ft.	15,000	13,500	645	12,855
Riprap.....Cub. yds.	750	730	Nil.	730
1230 Concrete....."	600	500	35	465
1st class Masonry....."	12,100	9,646	3,146	6,500
2nd class Masonry....."	4,000	3,423	1,458	1,965
Paving....."	700	588	187	401
Foundations.....Dollars	.....	\$ 3,000	\$ 457	\$ 2,543
Bridge Superstructure....."	(Timber spans at contract rates.)			42,500
Beam Culvert Superstructure....."	.....	5,260	Nil.	5,260
Road Crossings and Diversions....."	.....	3,290	192	3,098
Special Works....."	.....	455	Nil.	455

(Signed)

1240

OTTAWA, November 28th, 1871.

THOMAS R. BURPÉ.

[468.]

INTERCOLONIAL RAILWAY.

CONTRACT No. 9.

Estimate of work Still to be done as per Return dated November 16th calculated at Order in Council Rates 27th July 1871.

Quantities to be done at Nov., 1st 1871.	DESCRIPTION OF WORK.	Rates.	Amount.
		\$ cts.	8 cts.
138	Acres, Cleaning, &c., &c.....	14 00	1,932 00
216,000	Lineal feet Fencing. Per 100 feet.....	5 00	10,800 00
26,092	Cubic yards Rock Excavation.....	0 90	23,482 80
240,581	do Earth do	0 25	60,145 25
1250 6,500	Lineal feet Under drains.....	11 00	715 00
1,200	Cubic yards Riprap.....	2 00	2,400 00
190	do Concrete	4 00	400 00
2,362	do 1st Class masonry.....	14 00	33,068 00
1,369	do 2nd do	11 00	15,059 00
584	do Paving	4 00	2,336 00
	Foundations (Estimated).....		500 00
	Bridge Superstructure at Contract rates.....		4,320 00
	Beam Culvert Superstructure,		681 00
	Road Crossing and Diversions (Estimated).....		5,513 00
1260	Special Works Estimated.....		12,000 00
			173,352 05

OTTAWA, November 28th, 1871.

Contract Price.....	\$354,897	Amount paid.....	\$128,700
Estimates.....	143,000	The advance.....	35,000
	<u>\$211,897</u>		<u>\$163,700</u>

(Signed,)

THOMAS R. BURPE.

[469.]

INTERCOLONIAL RAILWAY.

CONTRACT No. 15.

1270 *Estimate of Work. Still to be done as per Return dated November 16th calculated at Order in Council rates, July 27th 1871.*

Quantities to be done at Nov. 1st. 1871.	DESCRIPTION OF WORK.	Rate.	Amount.
		\$ cts.	\$ cts.
38	Acres, Clearing, &c., &c.....	14 00	532 00
120,710	Lineal feet, Fencing. Per 100 feet.....	5 00	6,035 50
2,758	Cubic yards Rock Excavation.....	1 00	2,758 00
427,000	do Earth do	0 25	106,750 00
12,855	Lineal feet Under drains.....	12 20	1,542 60
730	Cubic yards Riprap.....	2 00	1,460 00
465	do Concrete	5 00	2,325 00
6,500	do 1st Class masonry.....	14 00	91,000 00
1,965	do 2nd do	11 00	21,615 00
1280 401	do Paving	5 00	2,005 00
	Foundation, (Estimated).....		2,543 00
	Bridge Superstructure, at contract rates.....		42,500 00
	Beam Culvert Superstructure.....		5,200 60
	Road Crossing and Diversions (Estimated).....		3,098 00
	Special Works Estimated.....		455 00
			289,879 10

OTTAWA, November, 1871.

Contract Price.....	\$363,520	Amount paid.....	\$128,700
Estimates.....	143,000	The advance.....	35,000
	<u>\$220,520</u>		<u>\$163,700</u>

1290

(Signed,)

THOMAS R. BURPE

[470.]

CONTRACT No. 9.

CONTRACTORS' ESTIMATE.*Work remaining to be done 1st December 1871.*

		\$	cts.	\$	cts.
187,500	Lineal feet Fencing. Per 100 feet.....	5	40	10,125	00
18,200	Cubic yards Rock.....	0	90	16,380	00
125,350	do Earth.....	0	27	33,814	50
5,400	Lineal feet Under drain.....	4	50	243	00
800	Cubic yards Riprap.....	5	40	4,320	00
150	do Concrete.....	4	50	675	00
1300 1,350	do 1st Class masonry.....	9	00	12,150	00
1,805	do 2nd do	7	20	12,996	00
246	do Paving.....	6	30	1,549	80
	Bridge Superstructures.....			3,888	00
1,000	Lineal feet for Culverts.....	0	18	180	00
13	Public roads and cattle guards.....	75	00	975	00
21	Farm crossing.....	18	00	378	00
	Tunnel at Armstrong's Brooks $\frac{1}{2}$ this to be done	5,000	00	4,000	00
	<i>Less:</i>			\$101,704	30
	Cut Stone delivered. 300 yards @ \$8.....	2,400	00		
1310	Rough do 240 do \$4.....	960	00		
	Timber for cattle guards and farm gates (all made).....	400	00		
	Glycerine powder, steel, cement, lime, &c.....	3,400	00		
				7,160	00
				\$94,544	30

[471.]

CONTRACT No. 15.

CONTRACTORS' ESTIMATE.

Work remaining to be done 1st December, 1871.

		\$	cts.	\$	cts.
120,700	Lineal feet Fencing. Per 100 feet.....	5	40	6,517	80
1,430	Cubic yards Rock. Per cubic yard.....	1	00	1,430	00
337,917	do Earth. do do	0	20	67,584	40
12,000	Lineal feet Under drain. Per 100 feet.....	12	00	1,440	00
1320 750	Cubic yards Riprap.....	2	00	1,500	00
300	do Concrete.....	5	00	1,500	00
5,125	do 1st Class masonry.....	10	00	51,250	00
2,303	do 2nd do	7	50	17,272	50
359	do Paving.....	5	00	1,795	00
7	Public roads and cattle guards.....	75	00	525	00
	Bridge Superstructure.....			42,500	00
2	Overhead Bridges, 66 feet.	10	00	660	00
38	Single Farm Crossings 2 gates.....	10	00	380	00
31	Double do do 4 do	15	00	465	00
1330	Leas :			194,818	70
	Stone, cut, delivered 1,660—cubic yards \$8.	13,280	00		
	do Rough, delivered 1,270—cubic yards \$4.	5,080	00		
	Timber for cattle guar ^l overhead bridges, farm gates	500	09		
	Powder, steel, cement, lime, &c.....	1,800	00		
				20,660	00
				\$174,138	70

[472.]

INTERCOLONIAL RAILWAY.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 30th November, 1871.

- 1340 DEAR SIR,—In Mr. Smith's letter to me, enclosing the measurement of work to be done on Sections 3, 6, 9 and 15, he gives the following explanation, which I think it advisable to submit for the information of the Commissioners:—"We have taken a great deal of care with these, and I believe they are as close an approximation to the true quantities as it is possible to arrive at, at this stage of the work. There can scarcely be any changes in the masonry, except what may arise from variations in the depths of foundations. It is more difficult to arrive at a very close approximation in the earth works, as, almost in every case, the quantity in embankments exceeds that in the cuttings, and the estimated percentage for subsidence is little more than a good guess. In some places where we allowed 15 percent., we have found it too little, and in others 1350 "where we allowed ten per cent., it turned out to be too much"

These remarks will, I think, apply to all other schedules of quantities furnished.

Yours very truly,

(Signed,)

SANDFORD FLEMING,

Chief Engineer

RALPH JONES, Esq.,

Secretary.

[473.]

INTERCOLONIAL RAILWAY,

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, December 1, 1871.

- 1360 MY DEAR SIR,—Yours of the 28th ult. was received this morning. All masonry has been stopped since the 24th ult., except at Middle and Little Rivers. The second course of footings was finished at the former place yesterday, and at the latter the bridge seat course was finished on the 28th ult. All has now been wound up for the winter.

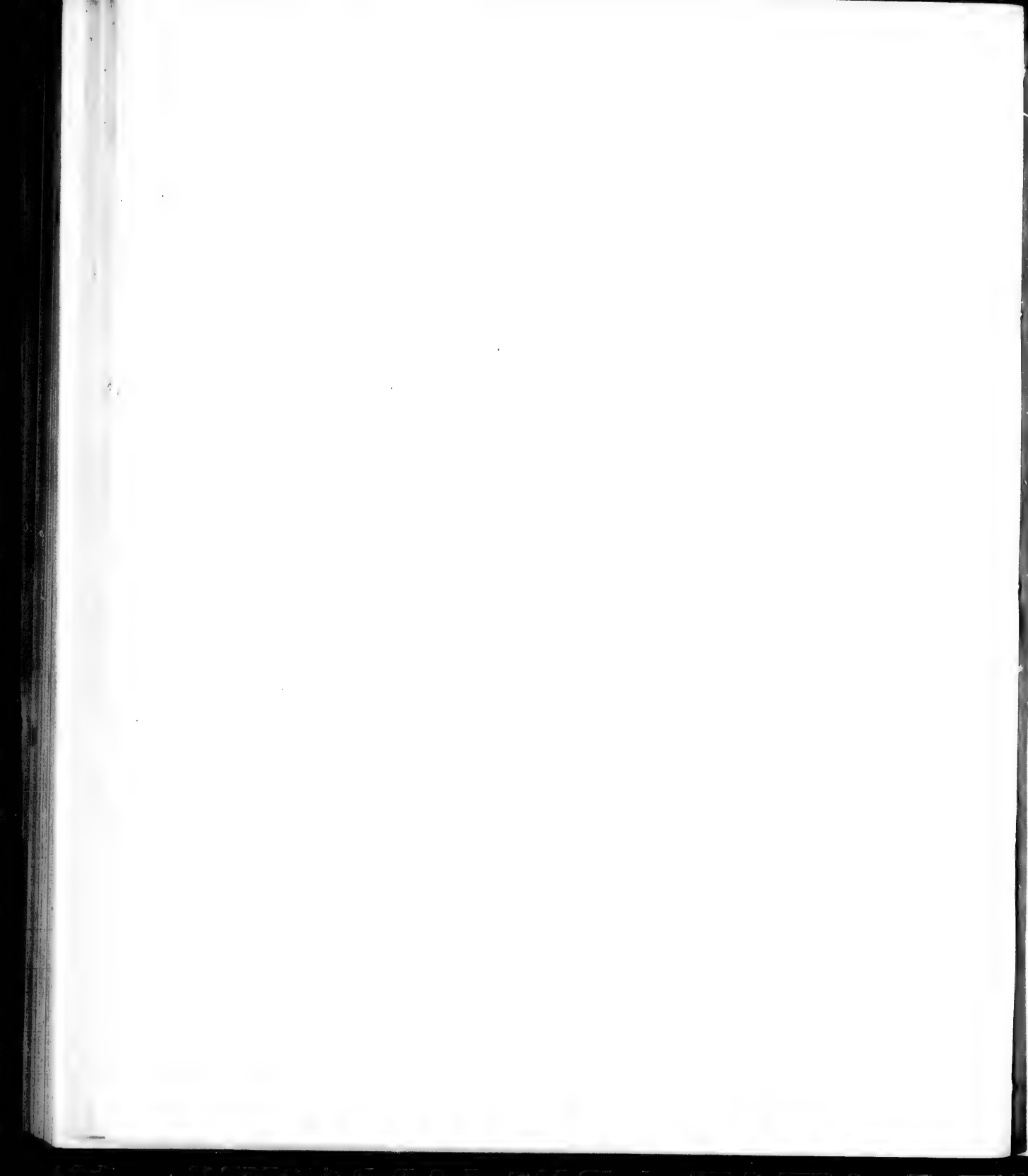
I do not think anything will be done at the Road Bridge this season. The derrick has not been put up yet, and but very little stone is on the ground; the place is so exposed that men cannot work there now. Bertrand's superintendent told me on Wednesday that he thought they would put up a temporary bridge.

- I have made a plan for this bridge, but did not drop the end spans I in 20 as I intended at first to do, for this would reduce the ends of the corbels from 12 inches to 8 1/2 inches, thus:

[Sketch]

The road here crosses the railway at an angle of 78° , so I have made the bridge with this much skew. You will remember that the division at this point gives the road a turn to the right, and had I made the bridge square across the line there would then have been a turn to the left also, thus:

[Sketch]



I do not expect to be able to send the estimate sooner than Monday. Mr. McLaughlin has not returned.

Yours very truly,

P. ALEX. PETERSON.

1380

MARCUS SMITH, Esq., District Engineer, Dalhousie.

[474.]

INTERCOLONIAL RAILWAY.

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

BATHURST, December 2nd, 1871.

MY DEAR SIR,—The contractor has asked me to give him detailed plans of all the structures on the line, so that he can give them to his foreman to get out and dress stone by this winter. I do not see how I am to get them ready for him; it will take all this month to get the summer's work put in proper order so that Mr. McLaughlin can hand me over his books; and now that the masonry has stopped I want to get all the stone on hand re-measured, so that I can commence the year fairly and avoid all the trouble of last season. There is not the least doubt that a larger staff is now required on this section than at any previous time. Since the staff was reduced last year we have been constantly at work, and have always had work ahead to be done.

I should like to get leave of absence some time this winter. Would you please let me know when you think I can be spared. I have not been off my work now for two years and over.

Yours very truly,

(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq., District Engineer, Dalhousie.

1400 [475.]

DALHOUSIE, 4th December, 1871.

MY DEAR SIR,—I have your letters of the 1st and 2nd inst. As regards the overhead bridge it would look much better dropped at the ends, and the corbel would be quite as strong when reduced to $8\frac{1}{2}$ at the end as it will at the other end with 12. As regards the plans, there will only be three or four of which special drawings require to be made, and these I will try to get done here this month before Brophy goes.

You can give the contractor a list of the culverts with their lengths, and the sheet of general drawings according to which they are to be built; this is all the contractor requires.

Yours truly,

(Signed,) M. SMITH.

1410

P. A. PETERSON, Esq.,

Division N.



[476.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, 11th December, 1876.

MY DEAR SIR,—I received the plan for the Bridges at Grant's Brook and the Mill stream this a.m., but as it is only a general plan it will be of no use to me. What the contractor wants are special plans for each place, so that he can dress the stone in the quarries and draw it to the bridge all ready to build. In the plan sent me the abutments 1420 are only 18 x 75 feet long, whereas to carry the slopes thus:

[Sketch.]

the west abutment, at Mill stream, must be 20 feet long, and the east 35 feet long. The contractor has just been in, and wants to have these abutments made with a well in the centre, and to have them shortened, and a retaining wall built to hold up the slopes thus:

[Sketch.]

I spoke to the Chief about these abutments, and he said of course wings must be added to carry the slopes, and in taking out the quantities for a new schedule, I allowed for them. I have given the contractor a list of all the special items required, lengths of coping, etc., and I think I can manage to get him all the plans ready by the end of the year. If you 1430 will send me a slight sketch of the abutments at Grant's Brook, and Mill stream, I will make drawings for them. All I want to know is if wells will be allowed, and retaining walls instead of lengthening the abutments.

Yours very truly,

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
District Engineer,
Dalhousie.

[477.]

MADISCO, 12th December, 1871.

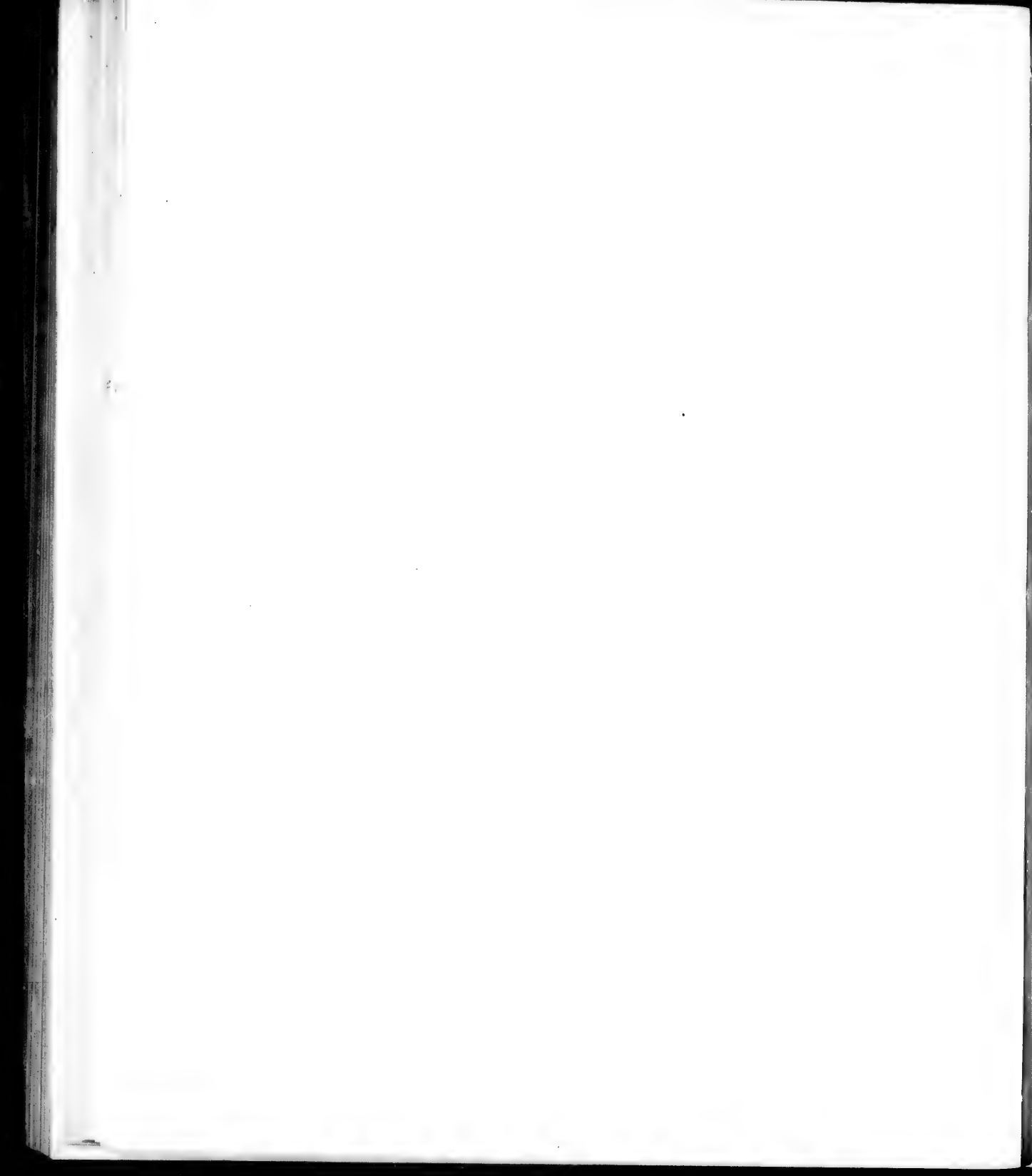
DEAR SIR,—Will you please be kind enough to send plan of structure that you have 1440 decided at Fournier's Brook, as we are ready to commence preparing for the same. Your attention to the above will greatly oblige,

Yours respectfully,

(Signed,) J. B. BERTRAND & Co.,

per J. A. TURCOTTE:

CHAS. ODELL, Esq.,
Division Engineer,
Section No. 9.



[478.]

DALHOUSIE, 12th December, 1871.

1450 MY DEAR SIR,—If you will read the instructions sent along with the general drawings of abutments for iron bridges, you will find it stated that “on no account must they be allowed to vary”; that if there is an insufficiency of water-way on account of the slopes, it will be better to add one or two spans. You will understand that wing walls of dry masonry are to be used to carry the slopes as far as practicable. But if in the case of Grant’s brook and the Mill stream you require a clear water-way of eighty feet, and this cannot be had even by the assistance of wings of dry masonry, then you will be obliged to lengthen the abutments, as the list of iron bridges (final) has been sent to the contractors, and cannot now be altered. If the contractor is going to use granite for these bridges, it will be better for him to adhere to the plans (general), but if he is going to use the limestone from Elm Tree quarry, or similar stone for part of the work, he may make a
1460 solid abutment; with only a circular well in the centre—provided he make a written application for the same; the wall to be filled up with broken stone from the fields, or very coarse gravel.

Yours truly,

(Signed,) M. SMITH.

P.S.—Please tell Mr. Odell I have no notice of the Chief or Commissioners coming this way. Chief was in Halifax on Saturday.

(Signed,) M.S.

P. A. PETERSON, Esq.,
Division N.

1470 [479.]

INTERCOLONIAL RAILWAY,

ENGINEER’S OFFICE, RESTIGOUCHE DISTRICT,

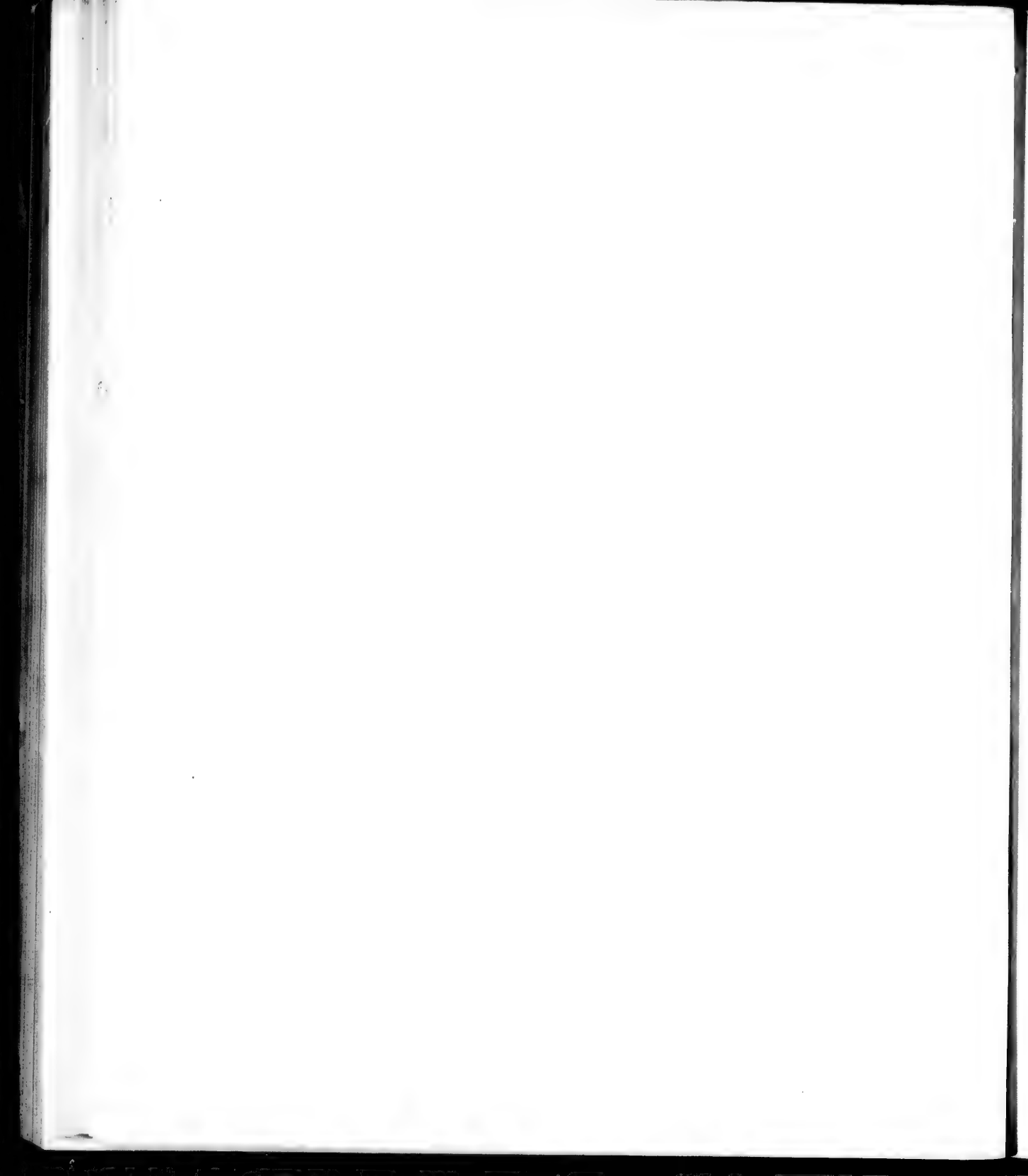
BATHURST, December 13th, 1871.

MY DEAR SIR,—I know the instructions say that the lengths of the abutments must not vary, but you will remember that I mentioned this to the Chief that morning at Chalmers’, when I gave him the quantities of masonry for the Mill stream and Grant’s Brook, with the quantities in the wings separate. He said of course the wings must be carried back to catch the slopes, so I left these quantities for wings in the schedule. Grant’s Brook is a very rapid stream, having a velocity of 12.66 feet per second at high water. The mill stream has a velocity of 6.72 feet per second at high water, and the
1480 bridge is reached by extreme high tide. So I do not think it would be advisable to trust to a dry stone wall. I should run the toe of the bank to the face of the abutment, thus

[Sketch.]

and even then cover the bank all with riprap.

I think the contractor intends to build these abutments with limestone from the Elm Tree, but even then I cannot see the saving, as this stone comes out so rough that it must all be dressed. There would be a saving with stone that came out in large flat beds of an irregular shape.



I can find no place where this chamfer is to be *three* inches on the abutments. The plans all show *six*, and the *instructions and plans* show three on the *pies* alone.

Yours very truly,

P. ALEX. PETERSON

MARCUS SMITH, Esq.,
District Engineer,
Dalhousie.

[480.]

DALHOUSIE, 14th December, 1871.

MY DEAR SIR,—I have just had a letter from Mr. Peterson, in reference to the culvert at Louis' Brook Station, (106 plus 50, Section 15) which, on the profile and original schedule, is marked an 8 feet arch—the sectional area of the stream in the spring of 1869 and 1870 being 20 feet—but on November 12th, 1870, there was the heaviest freshet known on this division since the commencement of the surveys, giving the sectional area of this stream, at the railway crossing, 76.45 feet, with a velocity of 3.1 feet per second. At the same time the whole of this water was passing through the bridge at the public road, which is (this is in the original) 11 feet wide by 3½ feet deep, and the water came within 6 inches of the top, giving a sectional area of 33 feet, so that the velocity there must have been more than double what it was at the railway crossing—probably there was a good deal of obstruction at the latter place from bushes, &c.

The question is, what size will the structure be?—an 8 feet arch is evidently too small. Peterson proposes a 10 feet arch—which would be quite enough for the freshet of November, but would not leave much margin for a still greater freshet. 12 feet would be safer, but would considerably increase the quantities, which would be as follows:—

	Cubic Yards
8 feet Arch Masonry.....	485
10 " " "	601
12 " " "	751

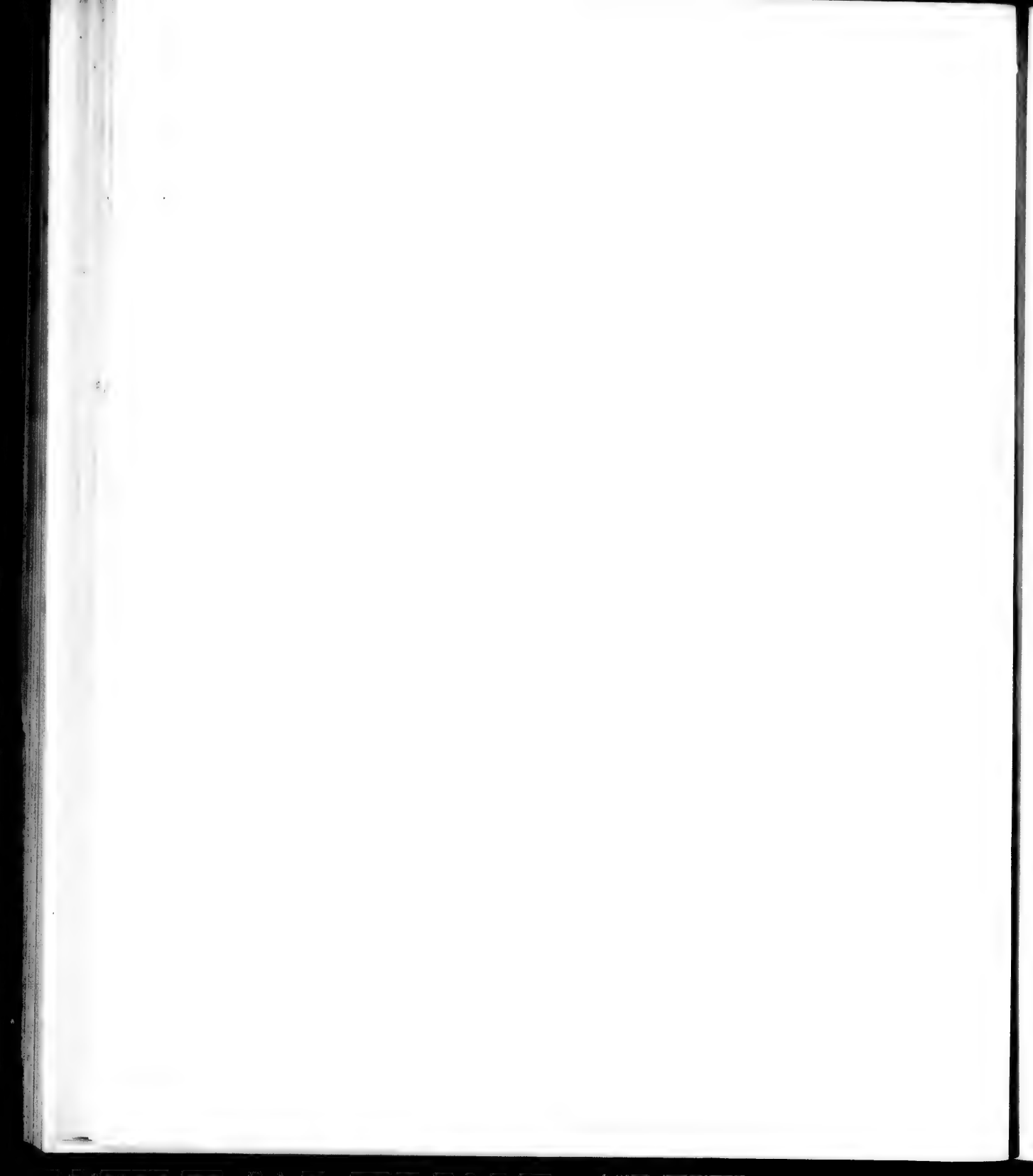
I shall be glad if you will give me your decision on this matter, as soon as possible, as the contractors have asked for plans, to get out the quantity of stone required, and to cut it. Will you please alter the quantity on your copy of revised schedule of quantities, according to your decision?

It is very provoking to have this question come up now. I have written to Peterson a very sharp letter for his neglect, which is inexcusable, as his instructions were to make a thorough revision of the structures in getting out the new quantities, so that there should be as little alteration as possible in future.

Yours truly,

(Signed,) M. SMITH.

SANDFORD FLEMING, Esq.,
Chief Engineer



[481.]

DALHOUSIE, 14th December, 1871.

MY DEAR SIR,—I have your letter of the 13th inst., referring to the size of the culvert at Louis' Brook. I cannot conceive why the question as to the size of any structure on
 53 0 your division should have been left to come up now. It is just a month since you sent in what, according to instructions given you, should have been a thoroughly revised schedule of all the works on your division; there have been no floods since that time to cause any alterations in the size of structures; indeed, according to your own showing, the flood took place in November last. Then was the proper time to compare the measurements of the streams with former measurements, and alter the structures accordingly. Such gross negligence is wholly inexcusable. The revised schedules of quantities have gone before the Commissioners and the Government, so all that I can do is to send your letter to the Chief Engineer, and let him or the Commissioners take what action they like in this matter. It appears doubtful, even, if a ten feet arch is sufficient. You could surely find out the discrepancy of the volume of water at the railway crossing and the road bridge—there was
 1540 probably back water at the former.

Yours truly,

(Signed,)

M. SMITH.

P. A. PETERSON, Esq.,

Division N.

[482.]

INTERCOLONIAL RAILWAY.

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, December 15th, 1871.

MY DEAR SIR,—I regret that you consider I have been grossly negligent of my duty
 1550 with reference to the culvert at Louis Brook, most likely you have forgotten that the size of this culvert came up on a previous occasion, when Mr. Bertrand wished to have it changed from an eight feet arch to a double box, and that you personally visited the stream and went over the stream brook, and then said it would not be changed, so I considered the matter as settled, and on revising the schedule did not go into the subject again. You will remember that when you walked over the line with me, September 8th and 9th, that we settled all these things that were in abeyance, and this was one of them.

Perhaps I was going beyond my duty in writing to you about it after it had been settled, but I happened to be turning up the stream brooks to find the depths of water to put in the drawings for Peter's River and Louis Brook, and taking them together, I noticed how near the volumes came to each other, and so wrote on the subject.
 1560

My own opinion after going over the matter carefully, is that an eight foot arch is quite large enough. The flood of November 12th 1870, was an exceptional one, the highest known in the small streams. An eight foot arch has an area of 7,359 feet, and up to springing, an area of 4859 feet. Now, if we pass this flood water through at the same velocity as a gravel bottom stands at Grant's Brook, 12.66 per second, we shall have Louis' Brook only occupying 192,89 feet (velocity 12.66: velocity: 3.1:: area 74.45: area 192.,) or 3.6 feet, below springing. And surely if the little road bridge with a total water way of



385 feet can carry this stream, a stone arch with a paved bottom, and nearly double the water way should be ample for all time. The water was backed upon the line by logs, stumps &c. in the stream, and was flowing freely at the road.

Yours very truly,

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
District Engineer,
Dalhousie.

[183.]

DALHOUSIE, 15th December, 1871.

Sir,—On the 18th November, I received a telegram from the Chief Engineer, asking me to give him my views as to the minimum staff of Engineers and Inspectors required in my district, and the best disposition of them hereafter. I went very fully into the matter in my reply, and recommended that the Inspectors of Masonry might be reduced to three (or possibly two) during the winter, as they would be sufficient to look after the preparing of the stone for the most important structures. But as to the engineering staff, I could not see how it could be reduced before the end of next summer without delaying the progress of the works, except, perhaps, on section 3 one of the assistants might be spared during the winter and could be well employed in this office, preparing drawings of those bridges where the superstructure was changed early in last summer from timber to iron: some of which have not yet been furnished to the contractors. Only a day or two after my reply to the Chief Engineer I heard a rumour that some of the assistants and rodmen on my district (I think sections 3, 9 and 15) had received notices from you that their services would not be required after the 31st inst. I have not been advised of this; but, if correct, then these notices must have been sent before my letter to the Chief Engineer could have reached him, and therefore these reductions on the staff must have been made without a proper knowledge of the position of the work on these sections to guide the Commissioners.

The work done on sections 3, 6, 9 and 15 is a little over one-third the total of the contracts, and is in that state that nearly every cutting is commenced and hardly any of them finished; a great many of the structures are in a similar position. The contractors will have a larger force on from the present to the end of next summer than they ever have had before, and there will be more work for the engineers than there has been in any season except the first after the contracts were let. They will not be so much on the line during the winter, but they have their progress profiles, and plans to work up, and to prepare plans of culverts and other general drawings that have not to pass through the office, and which the contractors are demanding now to get out the stone by; and next summer I expect to have a considerable portion ready for the rails, so that the centre line will have to be re-run, grades put in, etc. I shall always endeavour to meet the views of the Commissioners in this as in all other matters, and am willing to do with the smallest possible number of assistants consistent with the efficient performance of the work; this would be two engineers on each section (say 20 miles), competent to use the level and



transit, and set out structures and measure up work, etc.; in other words the Division
 1610 Engineers, with one assistant and such labourers as they might require to assist them, instead of rodmen, for the latter generally are not competent to use the above instruments or set out or measure up work and, in fact, are very little use beyond what a common labourer could do, and any reduction in the staff should commence with them; always excepting those few who have a good education and are endeavouring to learn to be engineers. A good deal of the time of the Division Engineer is taken up with office work or with the contractor; but even if he had his whole time to spend in setting out and measuring up work, etc., it is *physically impossible* for one man to attend to 20 miles or in some cases even 12 miles, so that he must necessarily have at least *one assistant* on whom he can rely. I hope the matter will be re-considered before any of the assistants leave us,
 1620 if the staff were even reduced now to be increased in the spring. It takes a considerable time for a new assistant to get a knowledge of the works, bench marks, etc., on a section; it is much better to have as few changes as possible.

I am, Sir,

Your obedient servant.

(Signed,)

M. SMITH.

P.S.—A few of the best of the rodmen have been raised to the rank and pay of *second* assistants; there are some others who perhaps can never be engineers, but are intelligent and have made themselves very useful; I may mention an instance in Wm. Mann, rodman on section 15, of whom the engineer in charge speaks very highly, and I have also reason
 1630 to speak highly of his industry and intelligence. If any rodmen are retained at all, I think that the most industrious should be duly considered.

(Signed,)

M. SMITH.

RALPH JONES, Esq.,

Secretary.

[184.]

DIVISION M.—INTERCOLONIAL RAILWAY.

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

BELLE DUNE, 16th December, 1871.

MY DEAR SIR,—Mr. Bertrand has asked for the plan of the structure at Fournier's Brook (Station 590 feet). In talking the matter over, he concluded to build the 10 feet
 1640 arch according to the original schedule, instead of the 20 feet beam bridge which you consented to (at his request) in September last, as the latter has considerably more masonry in it than the arch.

I suppose there will be no objection to his doing so, and that I may furnish him with the plan at once, as he is anxious to commence getting the stone dressed to suit.

Mr. Jamieson, the Masonry Inspector, applied for leave of absence for a couple of months to visit his family, and wishes to go as soon as possible. Will you let me know what answer to give him. I know of nothing here to keep him just now.

Please let me have an early reply to this.

Yours very truly,

(Signed,)

CHAS. ODELL.

1650

MARCUS SMITH, Esq.,

Division Engineer.



[485.]

18th December, 1871.

MONSIEUR,—Auriez vous la bonté de laisser avoir mon profil au porteur; en ce faisant vous obligerez,

Votre obéissant serviteur,

J. B. BERTRAND,

P. A. PETERSON,

District Ingenieur.

1660 [486.]

INTERCOLONIAL RAILWAY,

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, 19th December, 1871.

MY DEAR SIR,—The plan for the road bridge at Station 503, which you sent me last winter, will not answer for the bridge that is now required at this place. The distance between the slope stakes is now 153 feet, whereas the plan you sent me was for a distance of 130.5 feet. This difference of 22.5 feet, if divided between the three spans, will give 7.5 feet to each, making the spans 45', 18.5' and 45', instead of 37.5', 41' and 37.5'. If this plan is adopted, would you make the straining piece 7.5 feet longer and leave the truss the same or make each 2.5 feet longer, thus:

1670

[Sketch]

The old measurements are 13, 15, 13. I mentioned to the Contractor what you said with reference to his asking in writing for the well-shaped abutments.

I have given him the sizes of some special stones for these abutments, such as coping, bridge seats, &c., but of course can not give him the quantity of coping till the lengths are decided upon.

Yours very truly,

P. A. PETERSON.

MARCUS SMITH, Esq.,

District Engineer.

1680

Dalhousie.

You may build according to sketch Make Louis' Brook 10 feet arch.

M. SMITH.

[487.]

BATHURST, 19th December, 1871.

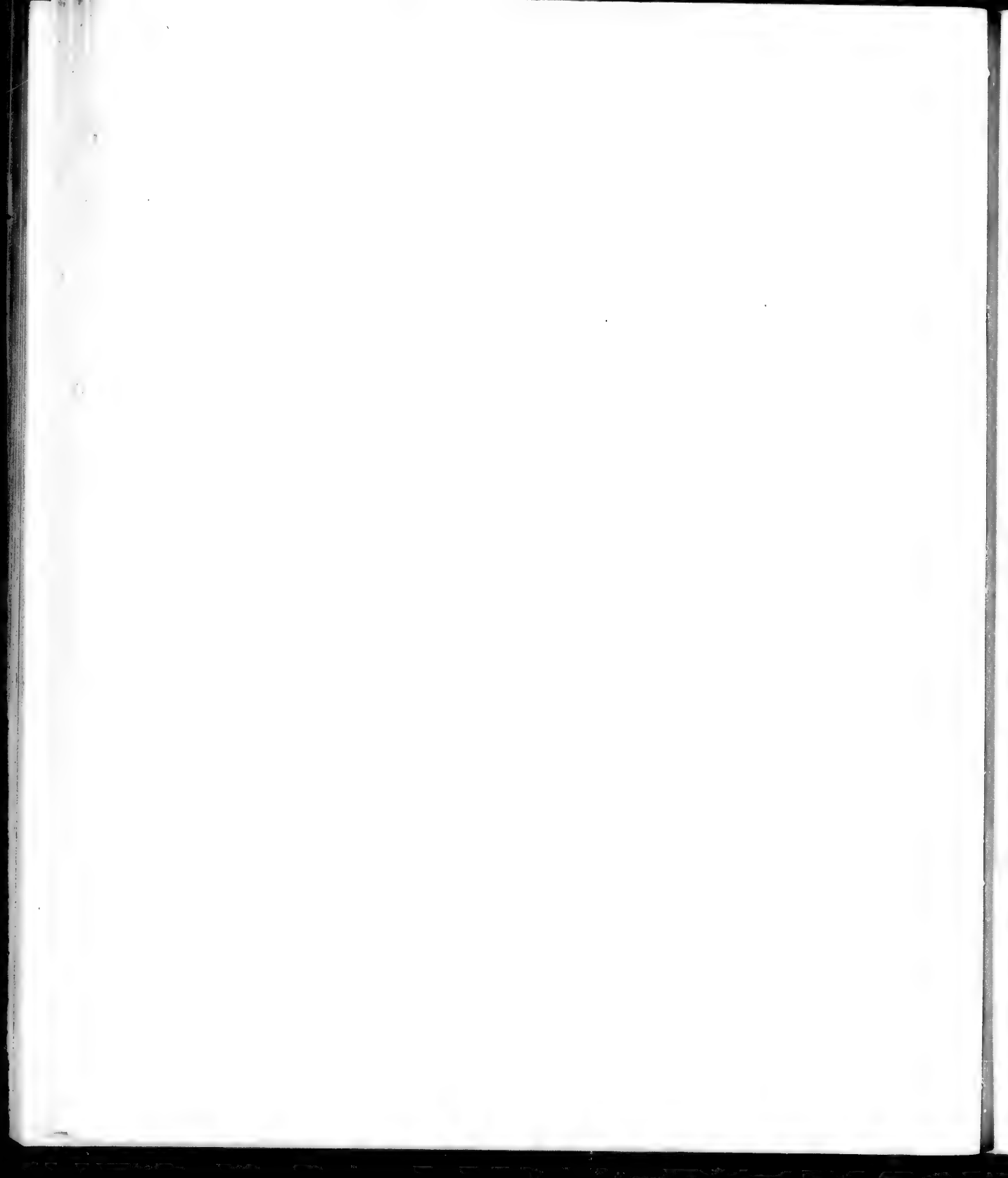
SIR,—Will you give me the quantity of masonry to be done for the bridge Nigadoo, Elm Tree and Belledune.

You oblige yours, &c.,

(Signed,) J. B. BERTRAND.

CHARLES ODELL, Esq.,

Division Engineer.



1690 [188.]

DALHOUSIE, 20th December, 1871.

MY DEAR SIR,---I have received your favour of the 16th instant, relative to the structure at Fournier's Brook (station 590.) The structures on the original schedule were decided from the measurement of streams in the springs of 1869 and 1870. On the 18th May, 1869, the average width of this brook was 25 feet; depth 2.22; sectional area 55.50 square feet, which would pass easily through a 10 feet arch; but in the freshet of 10th and 11th November, 1870, there must have been double that quantity of water. I believe I found the water within one foot of the top of bridge opening at the public road. (Please get size of this.) However, from measurements then taken, it was evident that nothing less than a 12 feet arch would pass the water freely. This gave masonry, taking the height
1700 from paving to formation 25 feet, 675 cubic yards; paving, 52 cubic yards; 20 feet bridge masonry, 699 cubic yards; paving, 115 cubic yards.

Bertrand may build whichever he likes. Of course I should prefer the 12 feet arch, but most probably he will find the 20 feet bridge the cheapest.

Yours truly,

(Signed,) M. SMITH.

CHARLES ODELL, Esq.,
Division M.

[189.]

DALHOUSIE, 20th December, 1871.

MY DEAR SIR,---I have received your favour of the 19th instant. The plans I sent
1710 you for bridge at station 583 was made from the cross sections which you sent to this office. You do not state how the difference in length has arisen, but supposing it cannot be so avoided, then you should divide it into three equal spans (if that will suit the ditches at the bottom of the slope), and bracing of each as shewn on your sketch, making the centre space a little longer than the sides, as it gets some support from the straining piece. You may make culvert at Louis' Brook 10 feet arch, if you think that large enough.

Yours truly,

(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
Division N.

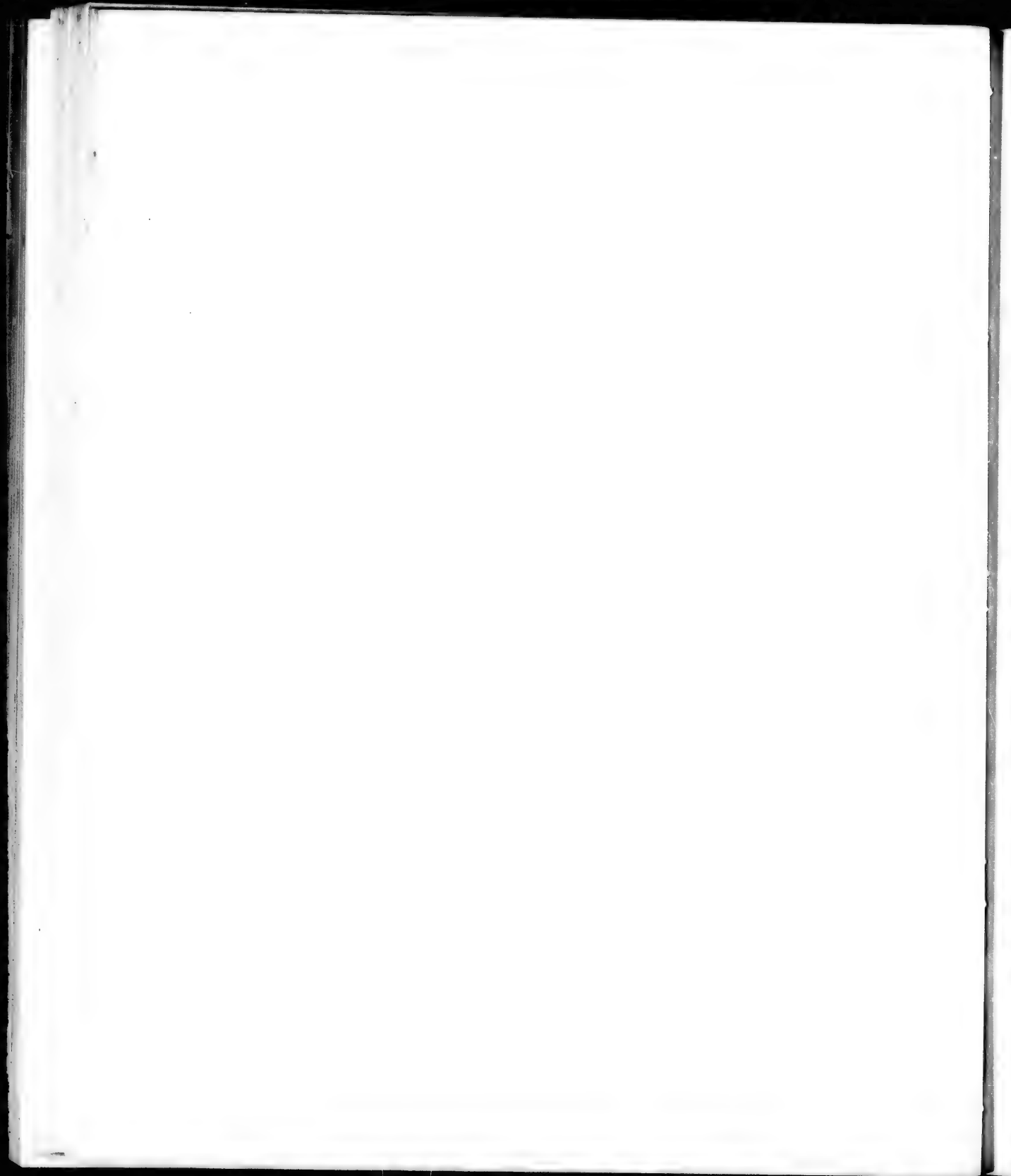
1720 [190.]

December 21st, 1871.

By Telegraph from Ottawa.
To MARCUS SMITH.

In order to square annual accounts in all government offices here, approximate certificates to end of year are especially wanted by Christmas. In case where the progress in December appears to you not materially different from November, assume the amounts for the month to be the same, in other cases please say how much per cent. less than November you think it may be. Of course this is an extremely rough way of getting at it, but it will meet the wishes of all here, and relieve the staff during Christmas. Pray telegraph me in reply before Saturday night. I should like December certificate to be as
1730 liberal as possible.

S. FLEMING.



[491.]

December 21st, 1871.

By telegraph from Ottawa,
To M. SMITH.

Referring to your letter of 14th December, the culvert should certainly be not less than 10 feet, and if the valley up stream is very contracted in area, a greater size may be expedient. Pray let me know.

S. FLEMING.

[492.]

DALHOUSIE, 22nd December, 1871.

1740 MY DEAR SIR,—For this month the certificate will only be roughly approximate, according to my telegram to-day, and as there will probably be a considerable expense this month in organising for the winter, which will not show in the measurements, so in order to keep the certificate somewhere near in proportion to the force, it will be better to put stone delivered (which you can get from contractors books) at the following rates viz.

	\$	cts.
First class stone cut and delivered.....	9	00
“ rough in large blocks.....	6	00
“ “ inferior.....	3	00
Second class stone cut and delivered.....	5	50
“ rough.....	3	00

1750 In quarries deduct cost of hauling to works.

Yours truly,

(Signed,) M. SMITH

P.S.—I have written both to the Chief Engineer and Commissioners, protesting against reduction of the engineering staff by discharging assistants. If Bolger does not wish to go he had better wait till I get an answer.

(Signed,) M. S.

CHAS. ODELL, Esq.,

Division, M.

[493.]

INTERCOLONIAL RAILWAY,
ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 25th December, 1871.

1760 MY DEAR SIR,—On my return home late Saturday evening I found your letter of the 22nd giving a new schedule of prices for the stone delivered.

Having previously despatched my return for the month to you, of which the greater portion was made up from actual measurement, making a liberal allowance for the remainder of the month yet to run, and the balance made up at the same rates as last month, I do not think we need alter the certificate, as the quantity of stone delivered is very small, and I have returned it all as first-class at the old rate, though a portion of it is for second-class work; having done so to keep the certificate within range of the

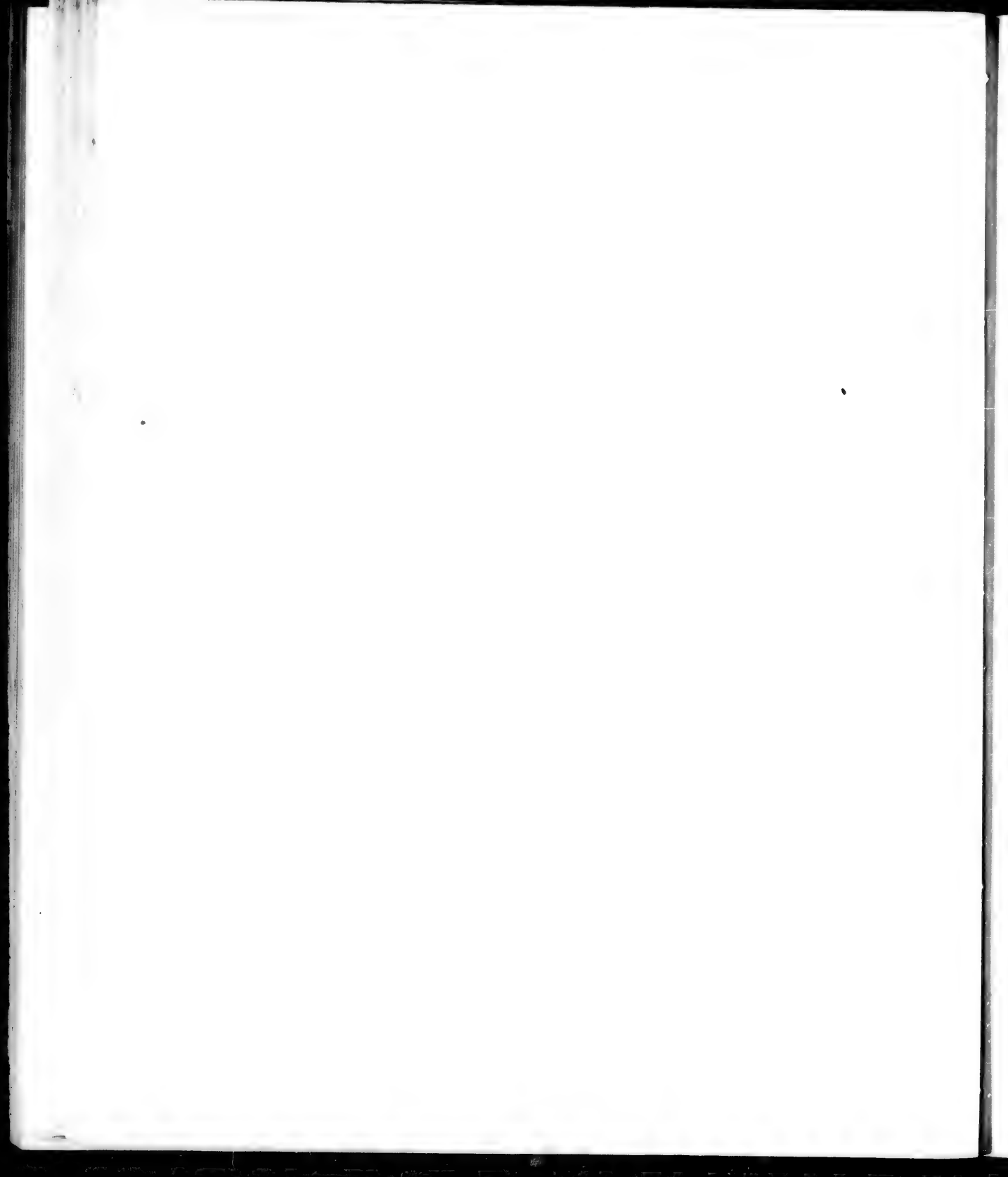
1770 force

Yours truly,

(Signed,) CHAS. ODELL.

MARCUS SMITH, Esq.,

District Engineer.



[474.]

INTERCOLONIAL RAILWAY,
ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 29th December, 1871.

1780 MY DEAR SIR,—The plan you sent me of the road bridge at 583 was made to fit a cross section of 30 feet base, and slopes $1\frac{1}{2}$ to 1. We have now to make a plan for a base of 22 feet and slopes 2 to 1, this being the base that gives the required amount of excavation to make up the bank and the slope that you decided last spring was necessary to stability. I enclose you a tracing showing the space divided into three equal spans of 45 feet, 4 inches. If you think any change advisable would you please sketch it on the tracing and return it to me, and I will make a drawing to agree therewith.

Yours very truly,

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie.

[495.]

DALHOUSIE, 30th December, 1871.

1790 MY DEAR SIR,—I have your letter of the 19th inst. asking for the weekly progress reports from September 30th, &c.

I wrote to Mr. Fleming on the 18th, and again on the 30th November, informing him that Mr. Matthews had left and no one was appointed in his place, and as he took three weeks' or a month's leave of absence before he finally left this office, there has been no one here to write out weekly reports or continue the tracings of the land plans for the Commissioners, or all the other things constantly required in the office. The only clerk I had was all his time engaged drawing plans for the contractors. He has now left so that this office is practically shut up except when I am there myself.

1800 There is a report that several of the assistants and rodmen on my district are to be discharged at the end of this month. I have had no notice of this, but if it is true there will be no more reports from the sections, and the contractor on Sec. 9 will have to stop work or reduce his force, as it is impossible that one man, the Division Engineer, can ever do the work necessary to keep the contractors going over twenty-one miles. Please remind the Chief Engineer of this state of things.

Yours truly,

(Signed,) M. SMITH.

T. R. BURPEE, Esq.

[496.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 2nd January, 1872.

1810

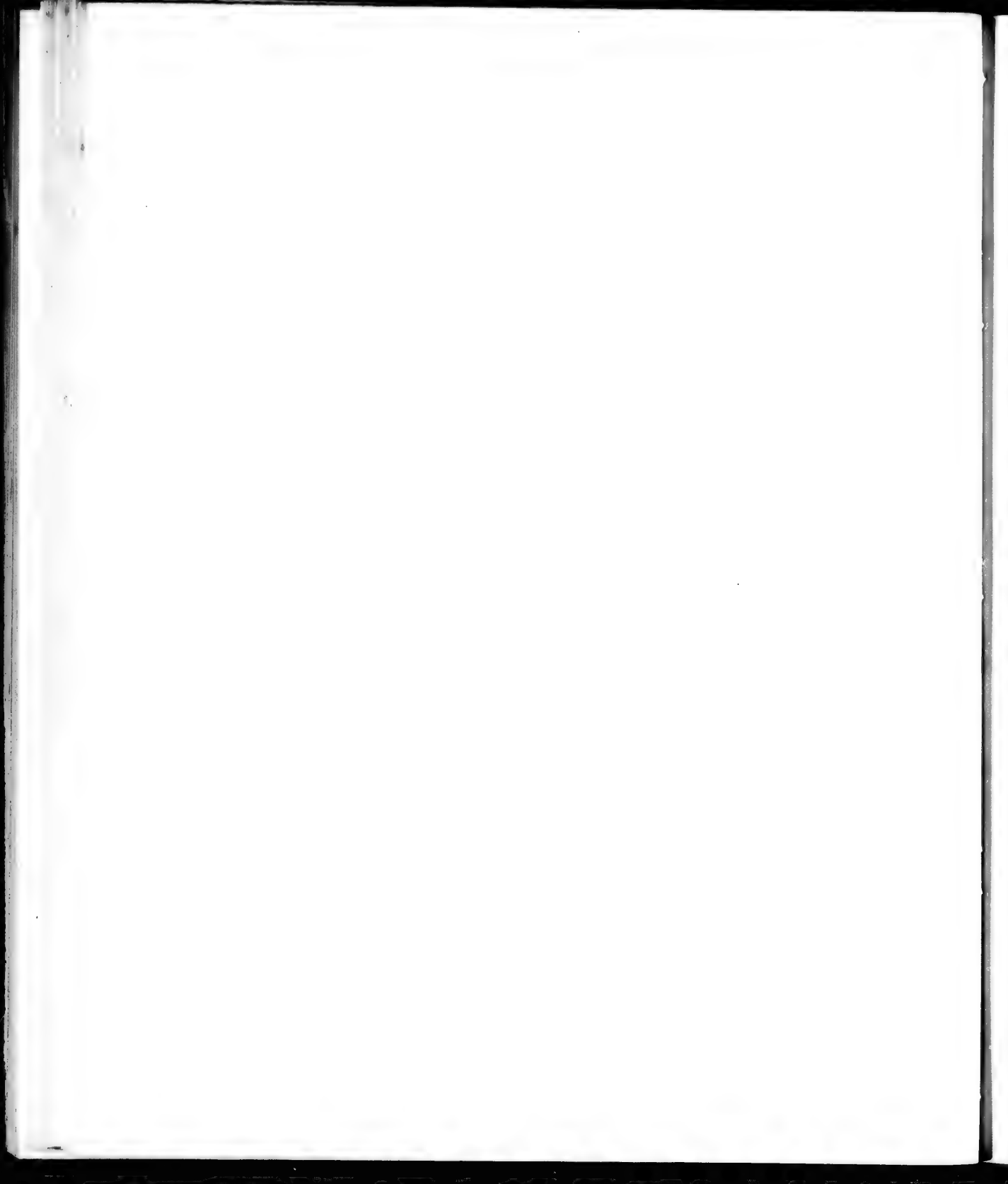
MY DEAR SIR,—The contractor wishes to know if cedar timber will be allowed in the over-head bridges. He is also asking me for a bill of timber for the bridge at 583. Will you please return me the cross section with the spans marked on that I sent you on the 29th ult., so that I can prepare a plan.

Yours very truly,

(Signed,) P. A. PETERSON.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie.



[197.]
1820

INTERCOLONIAL RAILWAY.
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 3rd January, 1872.

MY DEAR SIR,—I enclose plan of arch for Peter's River for your inspection. What I would call your attention to is the depth I have put the footings into the rock. The rock is similar to that you saw in the rock cut west of Peter's River. If any changes are required please make them on the tracing, and return it to me so that I can give it to the contractors.

Yours very truly,
(Signed,) P. A. PETERSON.

[198.]

DALHOUSIE, 3rd January, 1872.

1830 MY DEAR SIR,—Herewith I return you the tracing of plan of bridge at Station 583, received with your letter of the 29th ultimo. The drawing did not correspond with the figures giving the spans; however, it will be better to draw a plan according to the red lines and figures I have put on the sketch. The Chief Engineer has no objection to cedar being used in the posts, sills, caps and flooring of these bridges, but he says on account of the lightness of cedar the parts ought to be made of larger dimensions.

I shall send down by parcel post to-morrow the blank forms you require. I shall also return you the profile (on large scales) accompanying the record section books. (General Instructions No. 2.) This profile *ought not to have been colored* to show the work done, (See Section 12, General Instructions, No. 2.) but as you have done you may as well use it

1840 for the double purpose, and color it up, shewing work done to the end of last year in the form indicated by the Chief Engineer's circular letter. (1870.)

Yours truly,
(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
Division K.

[199.]

INTERCOLONIAL RAILWAY COMMISSIONERS OFFICE.

MONTREAL, 4th January, 1872.

DEAR SIR,—Your letter to Mr. Jones, of the 18th ult. about the engineering staff on your district has been forwarded to me by the Chairman, and I now write to reply to it.

1850 I regret that I cannot at all concur in the views which you express. If the whole of the plans for the work required upon the four sections, 3, 6, 9, and 15, have not been all supplied, I can only say that I think it anything but a credit to the staff that such should be the case. All the work is, of course, laid out, and no variation whatever in the location can by any possibility now arise, and certainly the whole of it must have been by this time properly staked out.

With the number of Masonry Inspectors that have been employed, I consider the staff which was upon the four sections far greater than was necessary, and only a useless and improper expenditure of the public money. The reductions that have been decided upon

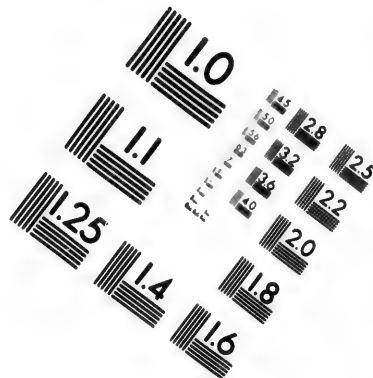
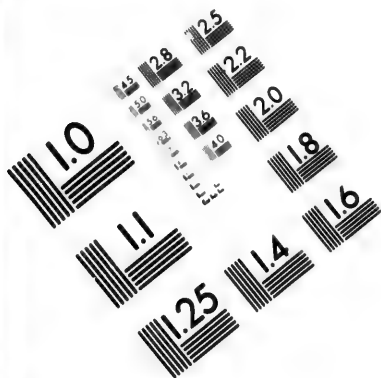
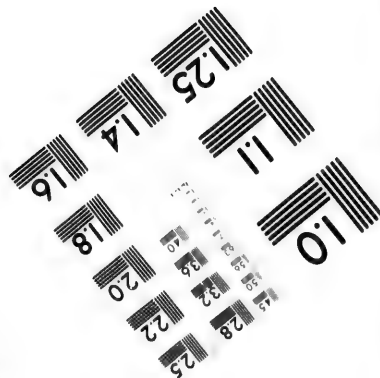
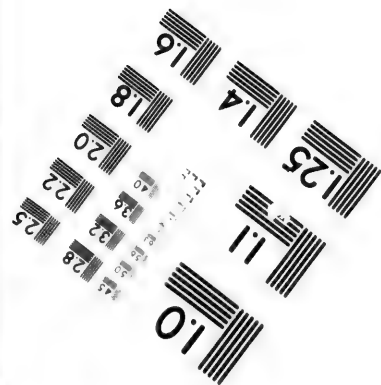
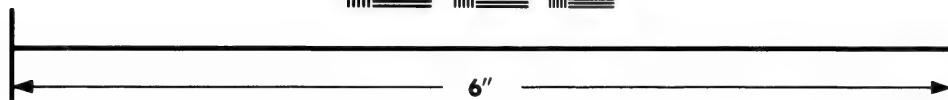
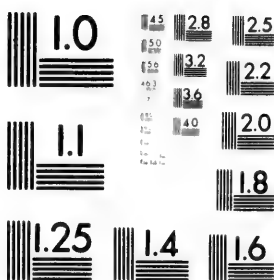


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are, in my opinion, absolutely necessary, and I do not consider that any less reduction 1860 would have met the exigencies of the case.

There is some very extraordinary discrepancy between your figures and those of the contractors as to the amount of work to be done. Which is right of course I am not able to say, but it passes my comprehension how such a difference can possibly arise.

We have lately made a very material change in the management and staff in the Nova Scotia District, and are succeeding in carrying on the works with a very large reduction indeed in the staff that has hitherto been employed. I am quite clear that as the works approach completion, which they are more or less doing all over the line, a similar course will have to be pursued elsewhere to what has been done in Nova Scotia.

1870 We are determined to have the work got through as rapidly as possible, to give the contractors a fair and reasonable chance in carrying out their contracts at the moderate rates at which they have taken them, and to prevent the existence of too large an engineering staff, which the public have to pay for. There have been, as you know, the greatest possible complaints of the excessive amount of expenditure for engineering superintendence, and when I see that up to the end of November, the engineering expenditure on the Intercolonial has amounted to close upon \$800,000, I confess the figures rather rattle me.

Yours truly,

(Signed,)

C. J. BRYDGES.

1880 MARCUS SMITH, Esq., Dalhousie, N.B.

[500.]

DALHOUSIE, 6th February, 1872.

MY DEAR SIR,—I am disappointed in not getting down to Bathurst this week, as I have to leave on Friday to meet the Chief at Rimouski and may possibly have to go further west. I should like to take the progress profile with me as I have got most of them on the district, as well as plans of structures built.

I should also like if you could get from Bertrand's clerk the force employed at each of the quarries on your section, including stonecutters and teams hauling stone away. After this you will carefully go over your quantities, entering the dimensions in regular order for each hundred feet, or each division thereof, so that they can be checked at any 1890 time in this office or elsewhere. When these and your plans of structures built are disposed of, then I want you to give me a list of the extra widths of land that have been taken since the plans were registered, and get arranged, as soon as possible, all that will be required for borrowing pits, if any, so that I can get the plans completed and sent to the Commissioners. I suppose I must send down the plans to compare with those registered as there seemed to be some bungle amongst you and the lawyers in the matter. As regards the quantities, I declared the contractors never even made any measurements, but they say they had an engineer down from Quebec. Did you hear or see anything of him? Answer before Friday.

Yours truly,

(Signed,)

M. SMITH.

1900

P. A. PETERSON, Esq.,

Division N.

[501.]

DALHOUSIE, 8th January, 1872.

MY DEAR SIR,—Herewith I return you the plan of culvert for Peter's River which, as far as I can judge, without seeing the foundations, will do very well. The truest economy is, of course, just to cut off enough of the loose rock, or soft rock, to save as much paving as possible and fill in with paving the side of the invert which rise above the rock; unless a contractor likes to go deeper into the rock and save paving altogether. I have not examined the details of the drawing, but presume you have made it according to the standard diagram, sheet No. 21.

I have written to the Chief Engineer respecting the reduction in the staff, which he has laid before the Commissioners. I shall probably have some instructions about the matter very shortly; meanwhile, employ all the spare time you have in colouring up the progress profile, and making plans of structures as executed. I suppose you have most of the latter ready, as my instructions were to make the drawing as soon as each structure was completed or stopped for the season, so as not to have all the work coming on at once.

Yours truly,
(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
1920 Division N.

[502.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 8th July, 1872.

MY DEAR SIR,—I have given the contractor a bill of timber for the bridge at 583, according to the sketch you sent down on the 3rd inst. He now informs me that it will be impossible to get the timber of sufficient length to make the stringers (46 ft. 6 in.) So I suppose it will be necessary to make the bridge in five spans, as originally intended, and we could divide the 159 feet into 5 spans of 30 feet and leave the 9 feet at the ends. I think, considering the height of the bridge, that bracing would be much better than simple corbelling. I have given the contractor a bill of some of the timber that a change of span will not affect; but he is anxious to have the entire bill as soon as possible.

What about the eighteen foot arch?

Yours very truly,
P. A. PETERSON.

MARCUS SMITH, Esq.,
District Engineer.
Dalhousie.

[503.]

DALHOUSIE, 8th January, 1872.

MY DEAR SIR,—The Chief Engineer has repeatedly written to me for the profile and cross section book (No. 3), according to Sections 12 and 19, general instructions No. 2. He says all of the St. Lawrence district have been sent in more than a year ago. I believe you have had these ready some time, only waiting to put in alterations in the grades. To

save time you may color up the profile (shewing work done) according to the Chief Engineer's letter of instructions, December, 1869, a copy of which you have. You will also employ any spare time in making the plans of structures, as built, and send me a tracing of each. I have remonstrated both to the Chief Engineer and the Commissioners against the reduction in the Staff, more especially on your division, and expect shortly to have some instructions in regard to the same.

1950

CHAS. ODELL, Esq.,
Division M.

Yours truly,
(Signed,) M. SMITH.

[504.]

10th January, 1872.

MY DEAR SIR,---I have received your favor of the 8th instant with tracing of over-bridge at 583. It will not be necessary to get the stringers so long as you state; (46 feet 6 inches) they can be broken in the centre of the span by a well fitting butt joint as at A, with a scarf joint over the piers as at B. and C., which would give the length of your stringer about 24 feet 6 inches, and 21 feet 6 inches over all; but this would necessitate two extra bolts in each span as at B. and C.; also there should be corbells over each pier under the scarf joints as at C. Indeed in every case where there is a joint over the pier (or butt) there should be corbells; or you may break the stringers by scarf joints as at D. E. and F., making the joint alternately over the bent and over the end of the straining beam as, say E. D. and G. C. alternately; but, as before, whenever there is a joint over the bent, there should be a corbell, and, as in this case, there would be two joints over every bent. Then for uniformity there should be a corbell under every stringer. This latter would give your stringer about 35 feet over all, and would be the best way to do the work if the timber could be got this length---of course the end stringers would be shorter. You may adopt either of these methods, or make five spans if the contractor prefers it: it would, doubtless make the strongest bridge. But if you adopt the first method it would be better to divide the span exactly into three parts (by the struts) of 15 feet each, and make the struts at the same angle which would bring the lower end farther down the bent; in any case where there are corbells it would be better to divide them there.

1960

1970

Yours truly,
(Signed,) M. SMITH.

P. A. PETERSON, Esq.,
Division N.

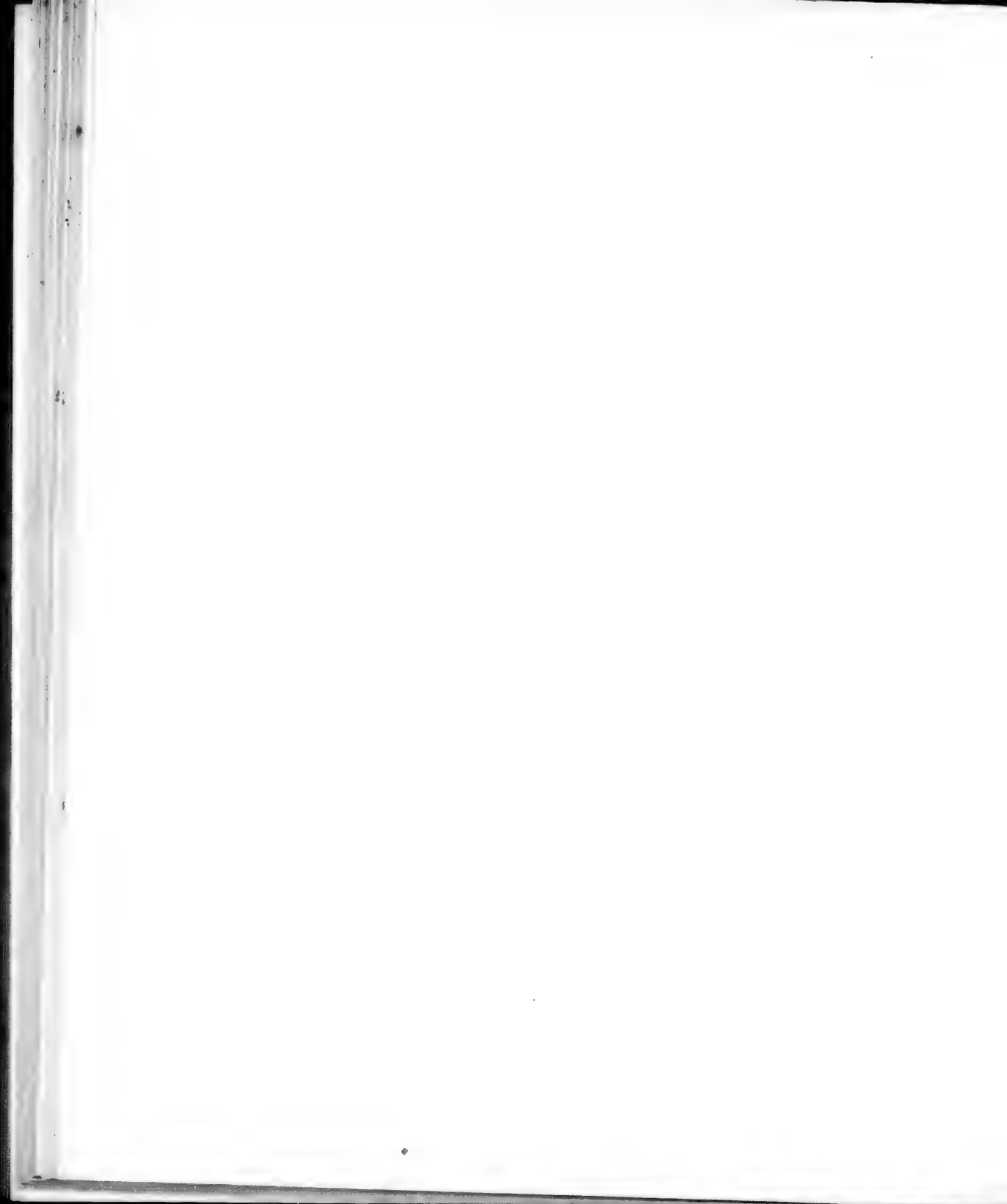
[505.]

OTTAWA, 15th January, 1872.

SIR,---Referring to the application of the contractors of Sections 3, 6, 9 and 15, for increased certificates, I beg to report.

1980

These contractors have pushed forward their work since last winter with a great deal of energy. They have accomplished a great deal more than was expected, and the character of the work generally is quite satisfactory.



I am perfectly satisfied, however, not only from their own statements but from the statements of the Engineers in charge, that the work has been executed at a heavy loss.

From all that I can learn the certificates fall far short of the actual expenditure, and unless they be increased the work must come to a stand.

The work could not come to a stand without resulting in serious difficulties, and in all probability, very large additional cost, and therefore it should be avoided if at all possible.

1990 You are aware that the certificates are made out from the returns of work executed and measured up by the resident Engineer, and the quantities so returned are computed at prices established by the Government.

I believe it will require those prices increased at least 20 per cent. to give the contractors the necessary relief, and as it is a matter of the very greatest moment to them that assistance should be rendered without delay, I shall be prepared to make out a supplementary certificate at once at the proposed increased rates on receiving the authority of the Government to do so.

I am, your obedient servant,

SANDFORD FLEMING,

Chief Engineer.

2000

Hon. H. L. LANGEVIN,
Minister of Public Works.

[506.]

Copy of a Report of a Committee of the Honorable, the Privy Council, approved by His Excellency the Governor General in Council on the 20th January, 1872.

The Committee have under consideration the Report from the Intercolonial Railway Commissioners dated 18th January, 1872, in reference to the applications of the contractors for Sections 3, 6, 9 and 15 of that line for increased certificates, and on the recommendation of the Hon. the Minister of Public Works, they respectfully advise that the said
2010 Report, embodying and submitting for favorable consideration the Report of the Chief Engineer in the said application, be approved and adopted, the Commissioners taking care that the bulk sum of the contract be not exceeded.

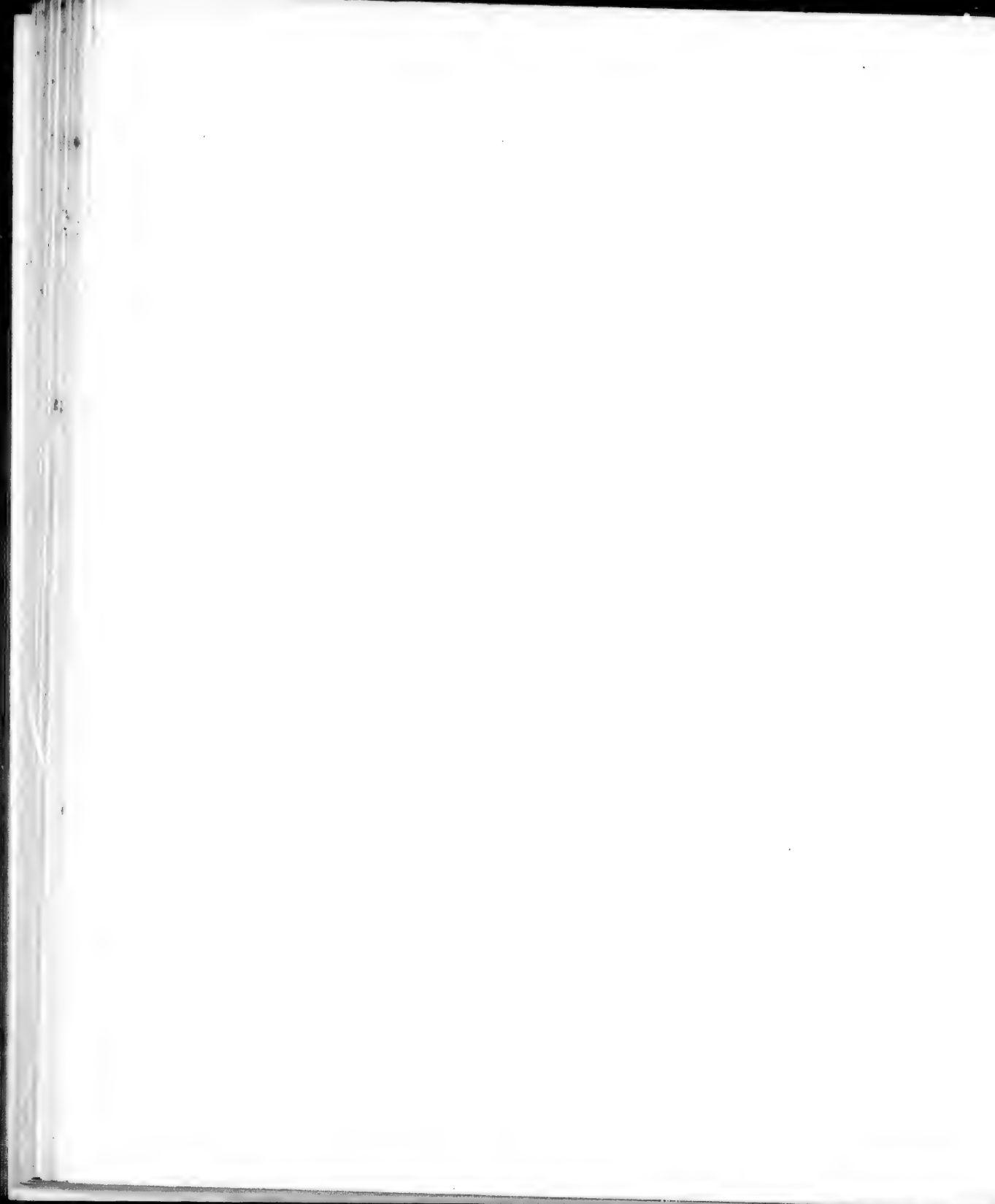
Certified.

(Signed,)

W. H. LEE,

Clerk Privy Council.

The Intercolonial Railway Commissioners, &c.



[5064.]

OTTAWA, 18th January, 1872.

The report of the Chief Engineer of the Intercolonial Railway, dated the 15th January, instant, and addressed to the Hon. H. L. Langevin, C. B., Minister of Public Works in reference to the application of the contractors for Sections 3, 6, 9 and 15 of the Railway, for increased certificates, having been referred to the Commissioners for an immediate report, the undersigned, in view of the statements of the Chief Engineer therein contained,—

“That these contractors have pushed forward their work since last winter with a great deal of energy, having accomplished a great deal more than was expected, and that the character of the work generally is quite satisfactory;”

“That he is quite satisfied, from the statements both of the contractors and Engineers, in charge, that the work has been executed at a heavy loss ;

“That from all he can learn the certificates fall far short of the actual expenditure, and unless they be increased the work must stop ;

“That the work could not come to a stand without resulting in serious difficulties, and in all probability very large additional cost, and therefore, should be avoided if possible ;

“That the certificates are made out from the returns of works executed and measured up by the Resident Engineer, and the quantities so returned are computed at prices established by Government;

“That he believes that these prices will require to be increased at least 20 per cent. to give the contractors the necessary relief, and it is a matter of the very greatest moment to them that assistance should be rendered without delay ; He will be prepared to make out a supplementary certificate at once at the proposed increased rates on receiving the authority of the Government to do so ;”

Have the honour to re-submit the said Report with a recommendation to the favorable consideration of the Governor in Council.

A. WALSH,

E. B. CHANDLER,

C. J. BRYDGES.

A. W. McLELAN.

[507.]

INTERCOLONIAL RAILWAY,
OFFICE OF THE CHIEF ENGINEER,
OTTAWA, 20th January, 1872.

2020 **MY DEAR SIR,**—On receipt of the returns of work to be done on Sections 3, 6, 9 and 15 in November last, I took the quantities and moneyed them out at the prices established by Order in Council for making up certificates, dated July 29th, 1871, and thus made the value of the work still to be done as underneath:—

Section No. 3.....	\$337,539
" No. 6.....	329,071
" No. 9.....	173,352
" No. 15.....	289,879

which, added to the amount of previous certificates, made in the aggregate something like \$100,000 over the contract sums for the four sections.

2030 Within the last ten days Messrs. Berlinguet and Fry have been here, and they have submitted estimates of work to be done, copies of which are enclosed. They have also shown me the details and given me copies. I send the whole down with the request that you will return them. I should point out that their estimate is for work to be done after the first of December, whilst your returns are for work to be done after the 1st November, but allowing for this the discrepancy is very great.

Mr. Brydges has stated his belief that the contractors must be right, and that the Engineers must be wrong. I have stood up for the returns you sent me, and defended them stoutly. I wish, however, that you would compare the two carefully, along with the resident Engineers, and let me know all about it. No one can doubt that you and I, and

2040 all the Engineers, desire to have the facts known and the returns accurate, without injuring the contractors on one hand, or misleading the Commissioners and the Government on the other. If, therefore, on enquiry, you find any mistakes, you will of course rectify them.

In making my own estimates of the value of the work yet to be done at Order in Council prices, these prices did not cover all the expenditures; there remained foundations and special works. I took these exactly as you gave them in every instance except one, and that was the tunnel at Armstrong's Brook. I observed that you had no allowance for masonry sheeting, should that be found necessary; and as there was no time to communicate on the subject, I considered it safe and right to ask \$12,000 for that alone.

2050 The contractors being in great strait for money, and the Government seeing that they could not go on with the contract without a large advance, and it being highly advisable in the opinion of all here that they should not at the present time break down, an Order in Council has been passed authorizing me to increase the rates at which quantities will be moneyed out in future certificates, 20 per cent. over those established by Council of the 27th July last. This will help them to pull through, but the Commissioners and the Government between them must take all the responsibility of the contract sums being exceeded. You will see from this that the crisis is, for the present, over. You will make

the returns as usual, and I will money them out at the increased rates, but I want you to understand all that is going on here, and give you an opportunity of comparing the statements made by the contractors with those you sent me. This you will be good enough to do, and let me know the result.

Yours very truly,

(Signed,) S. FLEMING.

MARCUS SMITH, Esq.,
Dalhousie.

[508.]

DALHOUSIE, 20th January, 1872.

DEAR SIR,—Your favour of the 4th inst. was received only a few days ago. I have not received any official notice of reductions made in the engineering staff of this district, but from a list sent me at my request by the paymaster, I do not see that there is the difference in our views that you express. I have always advocated a staff small in numbers, but of efficient members, which, however, is not very easy to get, and, according to the paymaster's list, the staff is larger than I asked the Chief Engineer for as a minimum, only the members are not exactly of the class I want. Had the assistant on Section 9 been retained instead of the rodman, and two rodmen instead of one on Section 15, the engineering staff would have been ample. I asked for only two, or at the most three, Inspectors of Masonry during the winter, with the view principally of facilitating the work and assisting the contractors, but it appears there are five Inspectors retained. I am sorry that you have expressed the opinion that the staff that has been employed on Sections 3, 6, 9, and 15 was greater than was necessary, and "only a useless and improper expenditure of the public money," which can only be based on theory, opposed to which are the facts of the work done. On the part of the Division Engineers and myself, the works have been thoroughly studied, reduced wherever possible, and plans varied to suit the various descriptions of stone found in the several quarries. By these means, the progress of the works has been greatly advanced, and the money value of the reductions made would pay the whole expenses of the staff over and over again. Nor have the assistants been idle, for besides their proper work, they have in a great measure supplied the deficiencies of the contractors' foremen or gangers, who are principally farmers or the people of the district, who have had no experience on railway works, and have kept the Assistant Engineers fully employed in looking after and explaining the work to them. Many of the works have been staked out three or four times, and such will be the case every season until the works are completed,

As to your remarks about the quantities, I was not aware that the contractors had any quantities except what they had from us. They have never shewn them to me or complained of my quantities. I can only conjecture that before they tendered for the work they may have had some one in Quebec to get out quantities from the profile of the centre line, which would not even give an approximation to the true quantities; in many places not one-fifth. Our quantities have been well checked, and you may rely upon them being practically correct. There may be slight variations according as the material may turn out more or less hard and require slopes of a greater or less inclination.

- 2100 I have spent the greater part of my time this last summer on the works, and have given the contractors every assistance in my power by advice and looking ahead for them in arranging their forces for masonry, &c., and I find their greatest delays have arisen from their illusions or miscalculations about quantities. The cost of masonry has been greatly increased through the masons wasting so much time waiting for stone, which has generally been deficient in quantity, though the contractors would insist the proper quantity was delivered. I will cite but one case:—Late in the season, when the frost had already set in, they commenced building the arch of a 10-foot culvert, for which, according to the engineer's returns, there was not near a sufficient quantity of stone cut. I called the contractor's attention to this, and both he and his foreman insisted there was
- 2110 enough, all but the key stones, which they could cut in a few days. I got all the stones measured, and found there was not just half the requisite quantity, so I stopped them going on before there was any damage done. Now in this case all they had to do was to get the aggregate length of the stones cut without any question as to the cubic contents.
- I hope you will give me credit for being as much interested as any one in getting the work through creditably, both as regards its character, cost, and early completion. It is my only chance of gaining a good position in the country, and I have had enough of running about the world. But there are many difficulties in the way which cannot be explained in a letter. Expected you down about December. Mr. Fry wishes me to come up to Quebec to advise him on the arrangements for next spring, and as there are various matters that would be settled better by discussion (verbal) than by letter, amongst others landing places for rails, &c., so that I think I shall have to come as far as Montreal, if not to Ottawa. I could start about the middle of February.
- 2120

(Signed,)

M. SMITH.

C. J. BRIDGES, Esq.

[509.]

MADISCO, 25th January, 1872.

DEAR SIR,—Will you be good enough to inform us if the works at Armstrong's Brook Tunnel are carried on and executed according to your satisfaction, and by so doing oblige

Yours very truly,

(Signed,)

J. B. BERTRAND, & Co.,

per J. A. TURCOTTE.

2130

CHAS. ODELL, Esq.,

Division Engineer,
Section No. 9.

[610.]

INTERCOLONIAL RAILWAY,

CHIEF ENGINEER'S OFFICE

OTTAWA, 26th January, 1872.

SIR,—I am in receipt of your letter of this date enclosing an Order in Council passed on the 20th instant, respecting increased certificates in favor of the contractors for Sections 3, 6, 9 and 15.

2140 This Order in Council is based on my letter dated January 15th to the Hon. The Minister of Public Works, in which I pointed out that the contractors required their prices increased at least 20 per cent. to give the relief they needed, and unless they obtained this relief it would be very difficult, if not impossible for them, as I was informed, to proceed with the work.

I observe, however, a condition attached to the Order in Council which, while approving of increasing the certificates as indicated, stipulated the bulk sum of the contracts must not be exceeded.

In November last, I received from the District and Resident Engineers a return of the work remaining to be done on each of these sections after a given date. (November 1st.)

2150 I moneyed out the quantities so returned at the prices fixed by Order in Council, dated July 26th, at least as far as such prices were applicable.

The Estimates so made out for the four sections were as underneath, and I submitted the results so obtained, in my letter to you, dated Nov. 29th.

Contract.	Value of Works Executed Nov. 1st, 1871.	Value of Works to be done Nov. 1st., 1871.	Total.	Bulk Contract Sums.
Contract No. 3.....	175,000 00	337,539 75	512,539 75	462,444 00
do 6.....	160,000 00	329,091 00	489,091 00	456,946 00
do 9.....	143,000 00	173,352 00	316,352 00	354,897 00
do 15.....	143,000 00	289,879 00	432,879 00	363,520 00
			1,750,861 75	1,637,807 00

It appears from the best information in my possession, furnished by the Resident Engineers appointed by the Commissioners, the work still to be done added to the work 2160 executed, both being moneyed out at prices fixed by Government, amounts to \$1,750,861-75 on the four sections, while the contract sums amount to \$1,637,807.

From this it is clear that the contractors are now paid at rates which will exceed the bulk sum of the four contracts, and if 20 per cent. be added to these rates it is equally clear that the contract sums will be still more exceeded.

Before making out new certificates I think it is my duty, as Chief Engineer, to point this out to the Commissioners for their guidance, and to ask for further instructions.

I need scarcely add that I shall be very happy to make out certificates at any rates which the Government and the Commissioners may authorize, but I do not clearly see my way to do so on the Order in Council, which you enclose, as it now stands; at all events 2170 without definite instructions.

I am, &c., &c..

(Signed,) SANDFORD FLEMING,

Chief Engineer

RALPH JONES, Esq.,

Secretary.

[511.]

26th January, 1872.

By Telegraph from Ottawa,

To. M. SMITH.

Please give my letter of last Saturday, enclosing contractor's statement of work to be
2180 done, early attention. Papers on same subject mailed last Tuesday.

S. FLEMING.

[512.]

SECTION No. 9, (M.)—INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 27th January, 1872.

MY DEAR SIR,—I have this day mailed per parcel post the tracings of the several
structures, showing the masonry as built during the past year on my division.

I shall have the tracing of the profile on the enlarged scale ready shortly, when I will
forward it to you.

I remain, yours truly,
(Signed,) CHAS. ODELL.

2190

MARCUS SMITH, Esq.,
District Engineer.

[513.]

MONTREAL TELEGRAPH COMPANY.

29th January, 1872.

TO SANDFORD FLEMING,
Ottawa.

You may rely confidently on our quantities ; they have been well checked.

(Signed,) M. SMITH.

[514.]

DEPARTMENT OF PUBLIC WORKS.

2200

OTTAWA, 30th January, 1872.

SIR,—I am instructed by the Hon. the Minister of Public Works, to inform the Com-
missioners of the Intercolonial Railway that the wish of the Government, is that as soon as
practicable, the Commissioners shall ascertain to what cause is attributable the discrepancy
existing between the new Bill of Works on Sections 3, 6, 9 and 15, and that of the Con-
tractors for those sections, and what is the real quantity of the work that should be
performed thereon.

I have the honor to be, Sir,

Your most obedient servant,

(Signed,) F. BRAUN,
Secretary.

2210

RALPH JONES, Esq.,
Secretary to the Commissioners Intercolonial Railway.

[515.]

DALHOUSIE, 2nd February, 1872.

My DEAR SIR,—In accordance with instructions from the Chief Engineer, I herewith send you quantities of work to be done, submitted by the contractors, also their estimate of the cost of completing the work. The Chief remarks:—"I should point out that their estimate is for work to be done after the first December, whilst your returns are for work to be done after the 1st November; but, allowing for this, the discrepancy is very great. Mr. Brydges has stated his belief that the contractors must be right, and the Engineers
 2220 "wrong. I have stood up for the returns you sent me, and defended them stoutly. I wish, however, that you would compare the two carefully, along with the resident Engineers, and let me know all about it; if, therefore, on enquiry, you find any mistakes, you will of course rectify them."

You will please look over these and have some explanation ready by the time I come down next week. I need hardly inform you that you are put upon your trial, and unless you can submit quantities that you can prove to be substantially correct, before any commission or Engineer who may be sent down to examine the same or measure the work, there will be a reorganization of the staff. I shall bring down a form for entering dimensions so that you will have a record of the quantity at every 100 feet, in fact the
 2280 same form I gave you at first.

Yours truly,

(Signed.) M. SMITH.

P. A. PETERSON, Esq.,
 Division N.

[516.]

DALHOUSIE, 2nd Feb., 1872.

My DEAR SIR,—In accordance with instructions from the Chief Engineer, I herewith send you quantities of work to be done, submitted by the contractors, also their estimate of the cost of completing the work. The Chief remarks—"I should point out that their estimate is for work to be done after the 1st December, whilst your returns are for work
 2240 "to be done after the 1st November, but allowing for this the discrepancy is very great, and Mr. Brydges has stated his belief that the contractors must be right, and the Engineers must be wrong. I have stood up for the returns you sent me, and defended them stoutly. I wish, however, that you would compare the two carefully along with the resident Engineers, and let me know all about it. If, therefore, on enquiry, you find any mistakes, you will of course rectify them."

You will please look over these and have some explanations ready by the time I come down next week. I need hardly inform you that you are put upon your trial, and unless you can submit quantities that you can stand by and prove to be substantially correct before any Commission or Engineers that may be sent down to test the same, there will be

2250 a reorganization of the staff. In getting out total quantities you should keep a record of the dimensions, so that the quantity of every 100 feet could be ascertained at a glance—in fact the same form that I gave you all when you first began to take out quantities.

Yours very truly,

(Signed,) M. SMITH.

CHAS. ODELL, Esq.,

Division M.

[517.]

INTERCOLONIAL RAILWAY.

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

SECTION No. 9 (M).

2260

BATHURST, 3rd February, 1872.

MY DEAR SIR,—I herewith enclose the certificate for work done, &c., during the month of January past.

Your letter of the 2nd, with *enclosures*, duly received, and will be attended to without delay.

Yours truly,

(Signed,) CHARLES ODELL.

MARCUS SMITH, Esq.,

District Engineer.

[518.]

INTERCOLONIAL RAILWAY.

2270

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, 3rd Feb., 1872.

MY DEAR SIR,—

* * * * *

I cannot see how Bertrand can give any correct quantities, as he has never taken any measurement. I imagine he must have made up his estimate from the progress profile that was colored in this office for him, and from it he could not tell whether a cut was gullotted full width, or not, or whether or no a bank was anything near the proper width.

Yours very truly,

(Signed,) P. A. PETERSON.

2280 MARCUS SMITH, Esq.,

District Engineer, Dalhousie.

[519.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, 5th February, 1872.

MY DEAR SIR,—I telegraphed the quantities for last month's estimates this morning, and I now enclose certificates for the same.

I have been looking over the contractors' quantities, and I find mistakes are quite easily detected. I think we should only prove him wrong, and not attempt to show that we are right; that should be taken for granted, and if the Commissioners think we are wrong let them send down a competent man to measure the work.

Yours very truly,
(Signed,) P. A. PATTERSON.

MARCUS SMITH, Esq.,
District Engineer, Dalhousie.

[520.]

INTERCOLONIAL RAILWAY COMMISSIONERS' OFFICE,
OTTAWA, 5th February, 1872.

The undersigned has the honor to report, that the Commissioners appointed to construct the Intercolonial Railway, at a meeting held on the 29th January last, adopted the following Resolution :

2300 *Resolved*, That the Chief Engineer be instructed to make his Certificates for work done up to 31st January, 1872, at the following rates on each Contract.

Class of Work.	3	6	9	15
	Contract.	Contract.	Contract.	Contract.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Clearing, &c., acres	18 00	20 00	17 00	17 00
Fencing, lineal feet	6 00	6 00	6 00	6 00
Rock Excavation, cubic yards.....	1 14	1 20	1 10	1 20
Earth Excavation, cubic yards.....	30	30	{ 66 30	30
2310 Under Drains, lineal feet.....	14 00	14 00	13 00	15 00
Rip Rap, cubic yards.....	2 00	2 00	2 00	2 00
Concrete, cubic yards	6 00	6 00	5 00	6 00
1st Class Masonry.....	17 00	17 00	17 00	17 00
2nd Class Masonry.....	13 00	13 00	13 00	13 00
Paving.....	5 00	5 00	5 00	5 00

That for all work done after 1st February, 1872, the rates established in July, 1871 be adopted in the certificates made by the Chief Engineer.

That after the weather has opened in the spring, and the work still to be done on each Contract is accurately ascertained, the prices be again revised, so as to keep the payments 2320 within the gross amounts of the Contracts.

And he submits the same for the consideration and approval of the Governor in Council.

A. WALSH,

Chairman.

[521.]

Copy of a Report of a Committee of the Honourable the Privy Council, approved by His Excellency the Governor General in Council, on the . . . February, 1872.

The Committee of Council have had under consideration the Report, dated 5th Feb., 1872, from the Chairman of the Commissioners for the construction of the Intercolonial Railway, embodying a resolution adopted by the Board to the effect that the Chief 2330 Engineer be instructed to make his certificates for work done up to 31st January, 1872, at the rates on each contract mentioned in the said report.

That for all work done after the 1st February, 1872, the rates established in July, 1871, be adopted in the certificate made by the Chief Engineer, and

That after the opening of the spring and when the work still to be done on each contract shall have been accurately ascertained the price be again revised so as to keep the payment within the gross amount of the contract.

On the recommendation of the Hon. J. C. Aikins, acting in the absence of the Hon. the Minister of Public Works, the Committee advise that the Report above submitted be approved and acted on.

2340

Certified,

W. H. LEE,

Clerk, P. C.

The Commissioners,
Intercolonial Railway.

[522.]

6th February, 1872.

MY DEAR SIR—I cannot come down to Bathurst just now, as I leave on Friday next to meet the Chief at Rimouski, and may possibly go farther west. I received your tracings of plans of structures as constructed to the end of December, 1871. I wish you could have sent your progress profile as well; or if you can do so before Friday I should take them
 2350 all up with me. The section book, you say, will require to be copied. If you send it up either now or as soon as you can, I can get it copied here, as Mr. R. C. Harris is coming as draughtsman in this office in place of Brophy; but the book must be *corrected* before it comes here, however much it may be, as Harris will have no time to check it. I also want a list of all the extra widths of land, if any, that have been taken since the plans were registered; and if any more is required for borrowing pits I should like it taken as soon as possible, as the Commissioners want a copy of the plans as soon as possible.

Tunnel at Armstrong's Brook.—This, as commenced, appeared to me rather narrow. Bertrand told me he had let the sub-contract on condition that the hole was to be equal to 10 feet square—100 s. feet. Of course if you find by the spring freshet that less would do
 2360 it may remain so. As to the revision of quantities, I have already found enough to pronounce the contractors' quantities worthless and an imposition, and have stated that they made no *measurement*; but Lawson says he heard there was a man down from Quebec measuring up for them. Did you see anything of him? Answer this question and about progress profile before Friday.

Yours truly,

(Signed.) M. SMITH.

P. S.—I wish you could get from Bertrand's time keeper or clerk the force employed at each quarry (naming quarry) on section, for any day last or present week, and send it up before Friday, including stone-cutters and teams hauling.

2370

M. S.

CHAS. ODELL, Esq.
 Division M.

[523.]

INTERCOLONIAL RAILWAY,
 ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,
 BATHURST, 7th February, 1872.

MY DEAR SIR,—I send you the profile which is coloured up to the end of 1871, but I have not had time to mark the months over the colours. I also send you a statement of earthwork to the end of November. So as to agree with the contractors, and for your convenience, I have added a column and put in the contractors' quantities, and the differences, plus and minus. I find that in re-arranging the quantities I have made some
 2380 mistake of about 1,500 yards, so that the quantity shown done in the sheet sent is 221,336

yards, whereas the estimate for November is 219,500. I shall look this over and have all ready when you come down. I send this in the meantime to satisfy you that the contractor is wrong.

Yours very truly,

(Signed,)

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,

District Engineer, Dalhousie.

[524.]

BATHURST, 7th February, 1872.

2:00 My DEAR SIR,—I received your telegram this a.m., with reference to sending the "progress profile." I send it by mail to-night.

I have gone over the Contractors' statement of earthwork, and have found him to be wrong at every point where he differed from me. Where he happens to be correct I suppose he has taken my quantities, which have been furnished in detail to him every month.

His first important difference is between 79.90 and 145.40, where he says there only remains to be done some 13,000 yards, whereas the space remaining to be filled at Louis' Brook (103.00 to 107.38, which is under rather than over the distance), will require 17,102 yards. Of the remainder of the 19,538 yards, which I show against his 13,000 yards, 2,239 yards are required from 131.50 to 145.40, thus leaving only 197 yards and the quantity in
2400 the space occupied by the culvert at Louis' Brook to finish the bank and make it ready to hand over from Station 79.90 to 145.40.

The next difference of importance is between 301.94 and 343.10, where contractor makes only 15,000 yards to be done, whereas I make 25,250 yards. The space requiring to be filled at 324 requires 18,887 yards, and that at 341 requires 2,213 yards, making in all 21,100 yards, and therefore only leaving 4,150 yards to make the present banks up to full width, and to fill the hollows in the slopes, which I think is quite little enough.

Between 347.30 and 377.22, contractor shows 1,500 yards remaining to be done. In the Bank at 329 alone there are required 3,452 yards to finish it.

From 381.26 to 417.12, contractor says there are 3,500 yards remaining to be done; 2410 whereas to fill the space from 384 to 386, 7,967 yards are required, and from 398.73 to 403.09 there are required 1,322 yards additional, which alone will give 9,289 yards against his 3,500; and then the bank made at Carter's Brook is both low and narrow, and the slopes are hollow. The bank between 409.77 to 417.12 will still require the percentage before the work can be taken off the contractor's hands.

From 423.25 to 455, contractor shows a difference, remaining to be done, in his favor of 2,356 yards. This I have not thought worth the trouble of going into.

From 457.17 to 487.68, contractor shows 10,500 yards to be done; whereas from bank to bank (475.90 to 481.65) there are 11,376 yards to be done; and from 457.17 to 461.51, 1,418 yards, making a total of 12,794 yards; and to this must be added a large amount to
2420 make up the bank as shewn, for it is low and narrow, and the slopes are hollow: and besides

this, the material is of such a nature that the slopes will run out in the spring. The next two differences arise from the contractor having put in the original quantities instead of those taken out from the cross sections. The work has been done between the points mentioned, 495.57 to 509.99 and 522 to 558.34.

Between 562 and 600.60, the contractor gives 68,000 yards as the amount required to finish the work; whereas I show 75,848. I have taken out the quantity in the bank, as shewn in the profile, and find when finished it will contain 17,163 without the percentage, and as the bank is not wide enough and the slopes are hollow, I think my allowance of 15,519 yards, as calculated from the excavation, is ample; so there remains 75,848 yards 2430 to be done instead of 68,000 yards.

In looking over all the earthwork, I think the contractor has been allowed all he is entitled to, and more; for in many places he has left wet bottoms in his cuts, varying from two to seven feet deep, and most certainly these will cost double as much per yard as what has been taken out; then again in many places his *haul* is getting very long, and of course taking off the slopes and dressing them will cost very much more per yard than taking out the gulleys.

Yours very truly,
(Signed,) P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
2440 District Engineer,
Dalhousie.

[525.]

DALHOUSIE, 7th February, 1872.

To S. FLEMING, Ottawa.

Quantities submitted by contractors as far as yet examined, are utterly worthless, and I believe not made from measurements at all. Full information on the subject when I meet you next week.

(Signed,) M. SMITH.

[526.]

SECTION No. 9, (M).

BATHURST, 7th February, 1872.

2450 MY DEAR SIR,—Since the receipt of your letter of 2nd February, I have gone over a portion of my section, looking carefully into the quantities, and thinking you might like to have something to show the chief engineer when you meet, I enclose a statement of the work as far as I have yet gone, in answer to that of the contractors.

According to the new schedule I sent in up to 31st October, I show in the line cuttings, an increase of earth of 46,712 over the old; and a decrease, in the rock 76,146 cubic yards from the old, on the whole section, arising from the alterations of grades, and from many cuttings having a large proportion of earth in them that were originally calculated as all

rock. In the portion of the line I have now gone over, which is where the bulk of the work still remains, I show the contractor in error (taking between the same points as he 2460 does) to the amount of 32,046 yards of rock, and 403,756 yards of earth, which I think will go strongly to prove him or his statement altogether fallacious.

I notice he has in places further down the line shown nothing where there still remains a good deal wanting to the banks, to bring them to grade and fill out the slopes.

I have desired McMillan to forward to you the progress profile; we have not the whole tracing complete, but he will send the tracing of the upper end, and the original of the lower part, which please return to me at your earliest convenience. I am writing in great haste to send per special.

Your truly,

(Signed,)

CHARLES ODELL.

2470 MARCUS SMITH, Esq.,
District Engineer.

[527.]

DALHOUSIE, 9th February, 1872.

MY DEAR SIR,—Herewith I send you the form in which I enter the dimensions for getting out quantities in excavations and embankments, and I always preserve them (in book form) for future reference, a cutting is generally all taken out either from the tables or from cross sections, but for brevity and to give an example of both, I have begun with the tables and finished with cross sections all in one cutting. I have received your report on a portion of the quantities submitted by contractors. You will please continue the examination, and have a full report ready on my return or as soon as you can.

2480

Yours most truly,

(Signed,)

M. SMITH.

P.S.—Progress profile received; original returned by parcel post to-day.

(Signed,)

M. S.

CHAS. ODELL, Esq.,
Division, (M).

[528.]

9th February, 1872.

By Telegraph from Bathurst.

To M. SMITH.

Letter just received; have never seen or heard of any person making measurements 2490 on this contract. I suppose that now the contractor's quantities are shown to be wrong, that I need not make any check of mine. Proving him wrong is much easier than going over all my measurements.

P. A. PETERSON.

[529.]

9th February, 1872.

By Telegraph from Bathurst.
To M. SMITH.

Letter of 6th just received ; never heard of any one measuring ; sent progress profile yesterday, with statements of quantities sufficient to prove the other false.

CHARLES ODELL.

2500 [530.]

QUEBEC, 15th February, 1872.

DEAR SIR,—The amount of the warrants issued this month is so unsatisfactory and disproportionate to the expenditure made in prosecuting the works on our Sections, that we have to ask for information and explanation in the matter ; and should feel obliged by your obtaining for us copies in detail of the engineers' returns and calculations, both for January and the preceding month, December, and forwarding them to us at your earliest convenience.

We are, Dear Sir,

Your obedient servants,

F. X. BERLINGUET & CO.

per W. HOME.

J. B. BERTRAND & CO.

per JOHN S. FRY.

2510

RALPH JONES, Esq.,

Secretary Intercolonial Railway.

[531.]

MADISON, 15th February, 1872.

DEAR SIR,—We sent by Mr. Berlinguet statement of the force working at the quarries, &c., which we hope you will find complete.

Your measurements received with many thanks.

In haste, yours very truly,

(Signed,)

J. B. BERTRAND & CO.

per J. A. TURCOTTE.

2520

CHARLES ODELL, Esq.,

Bathurst, N.B.

[532.]

INTERCOLONIAL RAILWAY.

COMMISSIONER'S OFFICE,

MONTREAL, 2nd March, 1872.

MY DEAR WALSH,—

* * * * *

I saw Fry yesterday, and I think we may now assume that they will go on with the work, and carry it on at any rate until Macdonald has made his investigation of the quantities. Pray see that Fleming gives them the benefit for February, of the \$26,000 that he told us he had made a mistake about.

I think also that looking at the amounts that we have paid them we may drop any deduction for percentages. They say, and I was not aware of it myself, that the 10 per cent was deducted from their January estimates.

* * * * *

Yours faithfully,

(Signed,) C. J. BRYDGES.

A. WALSH, Esq.,

Ottawa.

[533.]

INTERCOLONIAL RAILWAY,

ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, March 5th, 1872.

2540

MY DEAR SIR,—I have now attended to all the matters you mentioned in your letter of February 6th.

My quantities for the revised schedule were taken out from the cross sections, and after the manner of the form you enclosed. These quantities agreed very closely with the original quantities. At any place where any marked difference was noticed, the cross section quantities were re-checked. The quantities in embankments in the original schedule amounts to 577,529, and in the revised schedule to 566,406 cubic yards, 11,123 yards less, which is accounted for by the lowering of grade at several places. I have gone over my masonry, and I find it all correct, and can easily show where the contractor is wrong. I have just finished all the plans of structures built, and have them ready to send away.

* * * * *

Yours very truly,

(Signed,) P. ALEX. PETERSON,

MARCUS SMITH, Esq.,

District Engineer,

Dalhousie.

[534.]

March 6th, 1872.

By Telegraph from Ottawa
2560 To C. ODELL, Bathurst.

In total revised quantities you give tunnel at Armstrong's Brook one hundred and seventy feet; in returns to end of February you give one hundred and eighty-five feet done. Explain this.

(Signed,) M. SMITH.

[535.]

March 6th, 1872.

By Telegraph from Bathurst
To MARCUS SMITH.

One hundred and seventy feet is width of rock on top between open cuttings. Rock about twenty-five feet above top of tunnel, and sloped nearly half to one, increasing length 2570 of tunnel.

(Signed,) CHARLES ODELL.

[536.]

MADISCO, 7th March, 1872.

DEAR SIR.—Would you be good enough to visit and examine the tunnel at Armstrong's Brook, and inform us if the work is executed to your satisfaction.

Messrs. McLean and McGilvrey, sub-contractors, report their works completed. Should there be anything not finished to your entire satisfaction, you will oblige us very much by reporting same, as we will have to settle with them.

We remain, very respectfully,

Yours truly,

2580

(Signed,) J. B. BERTRAND & Co.

CHS. ODELL, Esq.,
Division Engineer,
I. R. C., Contract No. 9.

[537.]

9th March, 1872.

By Telegraph from Bathurst
To MARCUS SMITH.

Total length of tunnel one hundred and eighty-six feet. Ninety-three per cent. done.

C. ODELL.

[588.]

OTTAWA, 11th March, 1872.

2590 DEAR SIR,—I herewith send you copy of letter received this day from James Ross, Fredericton, N. B., attorney for the heirs of the late Robert Fulton and Justice Spalm, also copy of grants and plan of property; and I am directed by the Chairman to request you to see the parties, or communicate with them, and come to some settlement, if possible; or the Commissioners will have to send a valuator, and value the damage, and deduct the amount from your contract.

Perhaps when you see them you can make a satisfactory settlement without further trouble. Please attend to it.

Yours very truly,

(Signed.)

RALPH JONES,

Secretary.

2600

MESSRS. J. B. & F. X. BERTRAND,
Contractors for Section 15,
Bathurst, N. B.

[539.]

INTERCOLONIAL RAILWAY,

CHIEF ENGINEER'S OFFICE,

OTTAWA, 18th March, 1872.

MY DEAR SIR,—Enclosed you will find revised schedules, February, 1872, for making returns of work done on Sections 3, 6, 9 and 15. In telegraphing work done at the end of the month, the items capable of measurement, viz.: those on the list between clearing 2610 and paving (A to K) will be returned in the usual way, the actual quantities done being computed at the prices in the new schedules.

With regard to foundations, the percentage of the whole work done at the end of each month, at each structure, will be estimated; and a corresponding percentage of the amounts set down in the present schedules, allowed in the contractors' favor. Road crossings, special works, &c., will, of course, be returned according to the work done, taking the present schedules as a basis of value.

With regard to the item, "omissions and contingencies," I propose that, as a general rule, allowance is to be made to the contractors, according to the following scale:—

When 50 per cent. of the work is done, allow $2\frac{1}{2}$ per cent. of its value, and so on, as 2620 follows:—

50 per cent. of whole work done allow $2\frac{1}{2}$ per cent. of value of work done.									
60	"	"	"	"	3	"	"	"	"
70	"	"	"	"	$3\frac{1}{2}$	"	"	"	"
80	"	"	"	"	4	"	"	"	"
90	"	"	"	"	$4\frac{1}{2}$	"	"	"	"
100	"	"	"	"	5	"	"	"	"

There may be special reasons for varying the above rule, but if there be none it will be well to adhere to it for the present.

Yours truly,

(Signed,) S. FLEMING.

2630

M. SMITH, Esq.,
Dalhousie.

[540.]

MADISCO, 18th March, 1872.

DEAR SIR,—Will you be good enough to allow us to build culvert, Station 634 + 75, in dry masonry, for which we have splendid bed stone very well adapted for that kind of work. The building of above is very important, as it would afford us to make our road and continue our hauling. Should you justify our demand we would ask you the favor of setting out same at your convenience.

Yours very truly,

(Signed,) J. B. BERTRAND & Co.

2640

CHARLES ODELL, Esq.,
Division Engineer, Contract No. 9.

[541.]

March 23rd, 1872.

By Telegraph from Bathurst, N. B.
To MARCUS SMITH.

Contractor wants permission to build box culverts at station six thirty-five, dry masonry, and commence at once. What say you? Your letter of fifth not received yet.

(Signed,) CHARLES ODELL.

[542.]

OTTAWA, 26th March, 1872.

2650 To CHARLES ODELL,
Bathurst.

No objection to culvert at station six thirty-five being of dry masonry, provided suitable stone is used, and it is well built according to specification. See that foundations are well down below the frost.

(Signed,) M. SMITH.

[543.]

DALHOUSIE, 2nd April, 1872

To CHARLES ODELL,
Bathurst.

Make copy of contractors' quantities of work to be done, and send originals here to be
2660 returned to Chief Engineer as soon as possible.

(Signed,) M. SMITH:

[544.]

QUEBEC, 8th April, 1872.

DEAR SIR,—We are in receipt of your favour of the 3rd instant, and now return you
herewith the documents sent for our signatures.

As soon as the warrants are issued this month we should be glad to have a telegram
from you of the amounts.

Yours truly,
(Signed,) GLOVER, FRY & Co.

RALPH JONES, Esq.,

2670 Secretary Intercolonial Railway Board.

[545.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,

SECTION No. 9, (M),
BATHURST, 22nd April, 1872.

MY DEAR SIR,—Your telegram just received (8 p.m.) and I have only time before the
mail closes to enclose the original of contractors' statement of work done and remaining up
to the 1st December 1871.

I have copies of them. We hope to see you when passing through.

Yours very truly,
(Signed,) CHARLES ODELL.

2680

MARCUS SMITH, Esq.,
Dalhousie.

[546.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 23rd April.

MY DEAR SIR,—I enclose copy of contractors' quantities, as asked for in your telegram of yesterday. I also return the certificate for February 1872 made out according to revised schedule of quantities.

Yours very truly,

2690

(Signed,)

P. ALEX. PETERSON.

MARCUS SMITH, Esq.,
District Engineer,
Dalhousie.

[547.]

OTTAWA, April 26th, 1872.

DEAR SIRs.—In consequence of the strong representations made by the Hon. John A. Gosson, as to the inconvenience he would suffer, were the undercrossing and culvert on his farm abandoned, the Commissioners have decided to meet his views in this respect.

You will therefore proceed with the work in accordance with the original plan and specification.

2700

I am dear sir,

Yours truly,

(Signed,)

RALPH JONES,

Secretary.

J. B. & F. X. BERTRAND,
Contractors Section No. 15,
Bathurst, N. B.

[548.]

1st May, 1872.

By Telegraph from Ottawa,
To L. G. BELL.

2710 Plans of structures, contract 9, received. Read to beam culvert at station 201, bear in mind formation level should never be less than four feet above paving as a general rule; to insure drainage and firm road bed.

(Signed,)

S. FLEMING.

[549.]

DALHOUSIE, 2nd May, 1872.

DEAR SIR,—I have this morning received the following telegram from Mr. Fleming:—
 "Plans of structures, Contract 9, received. Referring to beam culvert at Station 201 bear
 "in mind formation level should never be less than four feet above paving, as general rule,
 "to insure good drainage and firm road bed." These plans were sent up to Ottawa almost
 immediately after my arrival here, and I have not seen them. I have not yet been able to
 2720 leave for Rivière du Loup on account of returns not having all come in, but I hope to
 leave this evening, and to return about the 16th May. I am getting Harris to make, for
 my own use, a tracing of the different progress profiles (Scale 200' = 1") coloured to end of
 last year. Will you kindly send up yours to him as soon as possible, and ask Peterson to
 do the same.

Yours very truly,
 (Signed,) LEONARD G. BELL.

C. ODELL, Esq.,
 Bathurst.

[550.]

DALHOUSIE, 2nd May, 1872.

2730 DEAR SIR,—Bertrand, the contractor, has just been here, and has spoken about dry
 culverts. I have given no instructions nor accepted any suggestions about them, stating
 my personal want of information in the matter, but saying that I know there had been
 some talk about it, and that I was sure that you, (I understood him to be speaking of No.
 9) as well as the other Engineers, were in full possession of instructions from Mr. Smith and
 Mr. Fleming. Please tell Peterson this, as he was named by Mr. Bertrand.

Yours very truly,
 (Signed,) LEONARD G. BELL.

CHAS. ODELL, Esq.,
 Bathurst.

[551.]

2740

INTERCOLONIAL RAILWAY,
 ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
 BATHURST, 3rd May, 1872.

MY DEAR BELL,—I enclose estimates for past month.
 I have made a careful estimate and find that my previous returns are all correct; the
 only difference I could make in the earth-work was 247 yards; masonry is not changed at
 all. Contractor now tells me that no measurement is to be made on No. 15, and that he
 does not want any made on No. 9.

Yours very truly,
 (Signed,) P. ALEX. PETERSON.

[552.]
2750INTERCOLONIAL RAILWAY,
COMMISSIONERS' OFFICE,
OTTAWA, 11th May, 1872.

DEAR SIR,—I am instructed to direct your immediate attention to the following resolution, passed by the Commissioners at their meeting held this day:—

Resolved—“That Mr. Bell, District Engineer in the Restigouche Division, be instructed to make a careful estimate of the work remaining to be done on Sections 3, 6, 9 and 15, and to report as early as possible, from his *own personal knowledge*, as to what amount remains to be done on each Section.”

The object in view is to reconcile the wide discrepancies between the claims of the contractors and the estimates hitherto returned by the Engineers.

2760 The position of the matter is as follows:—

Total Amount of Contract.		Paid to 30th April, 1872.
No. 3,	\$462,444 00.	\$268,000 00
6,	486,946 00.	232,000 00
9,	354,897 00.	225,000 00
15,	363,000 00.	224,000 00
	\$1,637,287 00	\$949,000 00

This leaves an aggregate sum of \$688,287 due for the completion of the works.

2770 The contractors have made written statements of the amount of work still remaining to be done on each Section, showing that they have not more work to do than the amount of money coming to them will enable them to finish. They also complain that they have done a larger amount of the whole quantity of work on each section than the estimates returned show.

The Commissioners wish you, at once, to make yourself personally acquainted with the amount of work actually remaining to be done on each of these sections, and report the same as early as possible.

2780 The contractors have prepared statements on these matters which you will call upon them to shew you. Take into account the present condition of the foundations of all the structures, and the work still to do in that respect, make a correct estimate of the amount of earthwork still to be done, measure the stone already delivered, and the amount still required to complete the masonry; and, generally, give such a return of all the work requiring to be done on each section, as will enable the Commissioners to see precisely how the case stands.

You are requested to give this your personal attention, and not be content with simply forwarding the statements of the Engineers now on the sections, as their estimates are so strongly complained of by the contractors.

It is of the greatest importance that this matter should be reported upon by you with the least possible delay, and the Commissioners will be glad to have your report on each section as soon as you complete it.

If you want temporary assistance to enable you to carry out these orders you are at 2790 liberty to obtain it, time being of the utmost importance.

Yours very truly,

RALPH JONES,

Secretary.

LEONARD G. BELL, Esq.,

Dalhousie, N. B.

[553.]

OTTAWA, May 14th, 1872.

DEAR SIRS,—Mr. Francis Ferguson complains that the Intercolonial Railway fences along your work are not properly built or put up, and that serious damage has been done to his crops. The Chairman directs me to call your attention to this matter. He hopes 2800 that you will cause immediate steps to be taken to put the matter right, so that there may be no further complaint.

Yours truly,

(Signed,)

RALPH JONES.

Secretary.

Messrs. J. B. BERTRAND & Co.,

Bathurst, N. B.

[554.]

RUSSELL'S HOTEL,

OTTAWA, 15th May, 1872.

SIR,—I would have wished that Messrs. Bertrand and Berlinguet, contractors on 2810 Sections 9, 15, 3 and 6 of the Intercolonial Railroad, in whose behalf I act just now, would not have to trouble you again about their contracts; but the small amounts allowed to them by last month's estimates compel me in their name to request that their case may be submitted for further consideration. The price of labor has increased considerably, as well as the price of all materials; for instance, powder and cement 40 per cent., steel and iron and all other materials 50 per cent on last fall's prices.

Messrs. Bertrand and Berlinguet had on the works and quarries last month upwards of 1,200 men, and 240 teams hauling stone and working in the quarries. These contractors are also importing 50 skilled stonecutters and masons, some of whom have arrived in the steamer "Niger." We fear that none of those things have been taken into consideration 2820 in the last estimates, though they require, and have required, on the part of Messrs. Bertrand and Berlinguet, a large outlay of money, for which I hope the Chief Engineer, Mr. Fleming, will allow a reasonable amount when his attention is called thereto.

I confidently hope you will take this matter into your favourable consideration. I have only to add that as Messrs. Bertrand and Berlinguet are determined to prosecute their works on the sections with such energy and vigor as may allow them to complete

their sections by January next, feeling confident that the Commissioners and the Chief Engineer will treat them liberally, at all events allow them sufficient estimates to pay their monthly pay lists.

2880

I have the honor to be, Sir,

Your obedient servant,

(Signed,) THOS. GLOVER.

AQUILA WALSH, Esq.,

Chairman Intercolonial Railway Commissioners.

[555.]

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

OTTAWA, 16th May 1872.

DEAR SIR,—The total work on sections has been computed at the rates adopted in making up certificates to contractors for work done up to this date, and the result is shown in the second column. The contract sums are given in the third column.

2840

Yours very truly,

(Signed,) SANDFORD FLEMING.

A. WALSH, Esq.,

Chairman.

[556.]

INTERCOLONIAL RAILWAY,

CHIEF ENGINEER'S OFFICE,

OTTAWA, 16th May, 1872.

MY DEAR SIR,—In assuming the duties of District Engineer, I enclose for your instruction and guidance a complete set of my printed general instructions Nos. 1 to 6 inclusive.

2850

The work now being in an advanced stage, No. 1 is no longer applicable. The same may be said of the greater part of General Instructions No. 2. No. 3 should, however, receive as much attention as ever. The weekly progress reports received and filed here are extremely valuable in many respects, and I am particularly desirous that they should be continued. General Instructions No. 4 are still in force, and I desire to draw your attention particularly to them, more especially to those referring to structures on side hill ground and foundations generally. No. 5 you will be good enough to note. No. 6 you will probably find useful.

2860

It is very desirable that you should regularly transmit to me full information respecting all the works and their progress. I have therefore to request that in addition to the regular weekly progress reports referred to in General Instructions No. 3, and in Clause 37 and 38 of General Instructions No. 4 you will (as is done in other districts) send at the end of each week a brief summary by telegraph, indicating what is going on, and the average force employed on each section within the district.

You will receive all instructions through the undersigned, and you will be good enough to transmit all communications relating to your district through the same channel.

You will particularly bear in mind that no changes in the original grades or structures, or plans of the same, are to be made without the knowledge and concurrence of the Chief Engineer, and that he looks to the District Engineer for the carrying out of instructions and plans, and the execution of the works according to specifications, and as intended when
 2870 the work was originally placed under contract.

I enclose for your further information a copy of a memorandum dated 18th March last, giving the views of the Government as to the duties and responsibilities of the Chief Engineer.

Yours very truly,
 (Signed,) SANDFORD FLEMING,
 Chief Engineer.

L. G. BELL, Esq.,
 District Engineer, Restigouche

[557.]

17th May, 1872.

2880 By Telegraph from Ottawa,
 To L. G. BELL.

Contractors propose having measurements made for themselves; do not act upon letter until further instructed.

(Signed,) RALPH JONES.

[558.]

17th May, 1872.

By Telegraph from Ottawa,
 To L. G. BELL.

Contractors are employing Engineers to measure up work done and to be done on Sections 3, 6, 9 and 15; instruct Engineers in charge to show the Contractors' Engineers
 2890 all cross sections, &c., they may wish to examine, and facilitate the enquiry in every way; get them also to make estimates as accurately as possible up to 31st May, in order to facilitate a comparison of measurements.

(Signed,) S. FLEMING.

[559.]

RALPH JONES, Esq.,
 Secretary.

INTERCOLONIAL RAILWAY,
 OFFICE OF THE CHIEF ENGINEER.

OTTAWA, May 20th, 1872.

2900 DEAR SIR,—I have your letter of this date respecting Sections 3, 6, 9 and 15. Will you be good enough to inform the Commissioners that I transmitted to Mr. Bell on the 17th inst., a telegram on the subject, of which the following is a copy:

"Contractors are employing Engineers to measure up work done, and to be done, on Sections 3, 6, 9 and 15. Instruct the Engineers in charge to show the contractors' Engineers all cross sections, &c., they may wish to examine, and facilitate the enquiry in every way. Get them also to make estimates as accurately as possible up to 31st May in order to facilitate a comparison of measurements.

Yours truly,

(Signed,) SANDFORD FLEMING.

[560.]

QUEBEC, 22nd May, 1872.

2910 DEAR SIR,—I have your telegram of to-day relative to placing Mr. Fitzgerald on number 9 Section; am sorry this has been assigned to Mr. Thompson for this reason, that he can only give to the 10th July to this work, consequently I thought that he could finish easily before that time from the Section being almost completed. Mr. Thompson will be here on Monday to proceed by the boat on Tuesday.

Mr. Fry has gone to the Section; telegraph Fitzgerald to see him.

Yours truly,

(Signed,) THOS. GLOVER.

RALPH JONES, Esq.

[561.]

7th June, 1872.

2920 By Telegraph from Ottawa,

To L. G. BELL.

Assuming you have made up returns of work done in accordance with letter to Smith, eighteenth March, in case of Section nine, you have probably overlooked allowance for Q., if so, and no reason to the contrary, add two and a-half per cent. Correct R. Answer immediately.

(Signed,) S. FLEMING.

[562.]

DALHOUSIE, 7th June, 1872.

DEAR SIR,—I herewith send you the certificates for work done up to the end of May, 1872. Each of the Division Engineers got due notice of your telegram of 17th May, and
2930 I presume the works have been measured up carefully. Peterson reports that he has made a careful estimate and found his previous returns correct. He also states, in reference to the measurement by Engineers for the contractors, that "Contractor now tells me that no measurement is to be made on No. 15. and that he does not want any made on No. 9." Mr. Berlinguet expressed himself similarly to me with regard to the measurement of No. 6. or rather the proposed measurement of all the four sections, 3, 6, 9 and 15.

* * * * *

Yours very truly,

(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[563.]

BELLEDUNE WAY OFFICE.

2940

7th June, 1872.

DEAR SIR,—In accordance with instructions received from you on the evening of the 3rd instant, I walked over Section No. 9, Intercolonial Railway, preparatory to measuring the work remaining to be done.

I found the masonry in a very advanced state, and the arrangements for the completion this season evident in the shape of stone and other materials delivered, and in the case of Fournier's Brook Bridge, where the material is not all on the ground a systematic plan for making a good communication between the quarry and the bridge.

The grading from the eastern end of the contract to the Belledune River is also well advanced, with the exception of about a mile through the swamp; but here drains are
 2950 made with a view to taking off the water, and are answering well, and a considerable force now engaged in grading. East end and west of this point will be available when the swamp is sufficiently dry to push this piece of work to completion in a short time.

From Belledune River to the western end of the contract there is much grading to be done; but as most of it will be taken from side borrowing, a large force can be employed to advantage, and in the present season, between cropping and harvest, there will be no difficulty, I should fancy, in obtaining the necessary labour. The embankment at Armstrong's Brook, and the cutting to the east of it, will require judicious management to complete that piece of work economically by the close of this season.

The fencing is decidedly backward, and in a locality where so much is to be feared
 2960 from fire, it is, perhaps, the best course to have left it to near last; but there is much work to be done in connection with it, particularly through the wooded parts of the contract, although the material, as a rule, are easily obtained, and the farmers are interested in getting the fences up.

The gates, I am informed, are all made. Considerable timber for cattle guards has been delivered on the works, and when the hauling is completed a short time will suffice to put in all the cattle guards not already built.

If the sign-boards are not made, a saving in time, labour and materials would be effected if the Engineer could be induced to substitute the "single post sign-board," now in use on the Grand Trunk Railway, for the sign-board as at present called for. The
 2970 matter is worth a trial.

I shall proceed at once to take the necessary measurements for arriving at the amount of work remaining to be done.

I am, dear Sir,

Yours truly,

W. G. THOMPSON.

J. B. BERTRAND, Esq.,

[564.]

COPY of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 11th June, 1872.

2980 The Committee have had before them a memorandum dated 27th May, 1872, from the Commissioners appointed to construct the Intercolonial Railway, submitting the following copy of letter from the Chief Engineer, in reference to the rates at which progress estimates should be prepared up to, and including, the months of May and June.

"The authority under which I have made up certificates in favor of the Intercolonial Railway contractors, under Orders in Council, dated 10th February and 5th April, has expired, and it becomes necessary to renew it.

"I doubt if it will be possible to diminish the rates established in the above Orders in Council at this time without greatly cramping the contractors, and retarding the progress of the work. The winter has proved very severe, and operations have been carried
 2990 "on at many places under great difficulties.

"To enable the contractors to renew their work with energy this spring, and prosecute it with vigour during the open season, I would suggest that the rates authorized by the said Orders in Council, be continued for the months of May and June, and until such further time as the Commissioners may be able to report to the Council a reduction expedient and advisable."

"For the reasons stated by the Chief Engineer, the Commissioners recommend that the rates established by Orders in Council of 10th February and 5th April, be continued and applied to all works executed to the end of June."

On the recommendation of the Hon. the Minister of Public Works, the Committee
3000 advise that rates be continued to end of June, as recommended."

Certified.

(Signed,) WM. H. LEE,
Clerk Privy Council.

Commissioners Intercolonial Railway, &c., &c.

[565.]

MADISCO, 22nd June, 1872.

To CHAS. ODELL, Esq.

DEAR SIR,—Would you kindly give us the definite line of the fence. Should you not have sufficient time to set it, you might give us at different places the distances from the centre. You would also oblige us very much by marking or giving us the places for
3010 farm crossings from Elm Tree River up.

Yours very respectfully,
(Signed,) J. B. BERTRAND & Co.
Per J. A. TURCOTTE.

[566.]

QUEBEC, 25th June, 1872.

SIR,—I am directed to enclose you a memorial from some of the contractors of the Intercolonial Railway, and to beg you will take the earliest opportunity of communicating its contents to the Commissioners, with the view of their taking into consideration the prayer of the memorialists.

I am, yours respectfully.
(Signed,) WM. HOME.
3020 RALPH JONES, Esq.,
Secretary, Intercolonial Railway Commission,
Ottawa.

[567.] To the Chairman and Commissioners

Of the Intercolonial Railway, Ottawa.

GENTLEMEN.—We, the undersigned contractors on the Intercolonial Railway, beg most respectfully to submit the following facts for your consideration.

That the difficulties encountered, and the expenses involved in starting and prosecuting the works of construction on this line of railway have been found to exceed largely all
3030 calculations that had been made or anticipated when the contracts were submitted for tender, or experienced on similar works in other parts of the country;

That the rates of wages which prevailed in the country and in the vicinity of the works, and on which, with a slight increase, we based our tenders, have been largely increased—in many cases as much as fifty per cent.—owing to the great demand for labour in the United States and Canada ;

That the local labour of the country, in addition to its cost, of *itself excessive*, has been found also to be very inefficient for the class of work required of them, and to which they have not hitherto been accustomed. That, when the necessities for their farms required their labour, it was found that at the very time most favourable to the prosecution of our
3040 works, we were unable to retain them, thus disorganizing our arrangements and causing us serious loss by rendering, for the time, the expensive staff employed, an unproductive outlay.

That there was not in the country sufficient skilled or other labour to prosecute the works to advantage, and, in consequence, it was found necessary to import such labour at large expense, by advancing passage monies, &c. ; and that it has only been by so doing that the works on some of the sections are in their present advanced position; and that many of the men whose passages had been paid left, before doing any work at all ;

That the difficulties and expense of bringing men to those remote parts of the road which were not inhabited, or insufficiently so, for such a large work, together with the
3050 necessity of building shanties, houses, stables, stores, and otherwise fitting out accommodation for the large number of men required, has taken a large amount of capital, from which no return can be had, if at all, until the end of the work. The interest on this outlay alone has been great ;

That the difficulties of obtaining quarries for a suitable class of stone for masonry have been beyond any preconceived idea, having had, in many cases, to go from 20 to 50 miles by land for proper stone. This was not expected, as the indications were, before tendering, that stone could be had at reasonable distances from the respective structures, more especially as the line passed through many rock cuts; and it is patent that, while the Engineers and Inspectors of Masonry, conversant with the country, advised us to open
3060 many quarries which, unfortunately, turned out fruitless, it has been most difficult and costly for us, strangers to the country, to find suitable quarries ;

That the Engineers and Inspectors of Masonry have been most stringent in the exercise of the powers they claim they are invested with, under instructions; and, in consequence, what is exacted as "second"-class masonry is equal, if not superior, to any "first"-class masonry known on railways on this continent; and in all fairness, we respectfully claim that payment should be made to us as first-class; and also that the character of the first-class masonry is in a greater proportion more costly to us, owing to above reasons, than similar works on completed railways; that such exactions were not contemplated by us on tendering, and we respectfully submit we should receive, in consideration thereof, an increased price equivalent to such extra cost ;
3070

That the difficulties experienced in the foundations of structures have been, in many cases, much greater than anticipated, the data and information furnished by the bill of works being very incomplete; thus causing serious loss to us in time and means, for which we respectfully submit we are entitled to full compensation ;

That in the season of 1870, the crops of hay, oats, &c., were, unfortunately, failures,

and the increased demand, owing to our necessities, raised the prices of these necessary articles one hundred per cent., a contingency not contemplated by us, and involving the bringing of these articles from distances of 300 to 500 miles;

3080 That the works situated as they are, distant from the source of supplies and markets, involves a large expenditure in providing supplies of provisions, plant, &c., from three to eight months in advance of the time required for their use;

That the letting of contracts during winter practically prevented that inspection of the country so necessary to form that accurate idea of the work which it is not possible to gather from any bill of works, however carefully prepared; and, in consequence, many difficulties presented themselves in carrying out the works which were unforeseen by us;

3090 That from the foregoing it is now evident that our contract prices are insufficient to enable us to complete the works without serious loss, and that the Engineers, from their personal knowledge in surveying the country and locating the line, were in a better position to judge of the cost; that in most cases the Chief Engineer's minimum estimates, based on, we presume, the most favourable view of our contracts, exceeds our contract prices, and that it is evident, under all the circumstances, his maximum estimate is the proper value of the works;

That although this work, of itself a truly national enterprise, has been undertaken by private contractors, your Petitioners feel sure there can be no wish from any section of the Dominion to see them suffer loss in carrying to completion their respective contracts in consequence of not foreseeing difficulties at the outset which practically were impossible to be foreseen;

3100 We, therefore, humbly pray that you will take this memorial into your most favourable consideration; that you will see fit to add to each of our contracts, a sum sufficient to enable us to complete the works without loss, and with energy and despatch. And, as in duty bound, we will ever pray, &c., &c.

* * * * *

(Signed,) F. X. BERLINGUET & CO.,
Sections 3 and 6.
" J. B. BERTRAND & CO.
Sections 9 and 15.
* * * * *

[568.]

DALHOUSIE, 1st July, 1872.

DEAR SIR.—Mr. Fleming, in going along the works here, being pleased with the approaches to level crossings, desired me to send you a tracing of the drawing, according to which they were built, and I send it herewith. I suppose you do not want the specification; there are separate clauses for each case, and the whole covers twelve pages of foolscap.

Yours very truly,

(Signed,) L. G. BELL.

It is for figures 2, 3, 5 and 6 that Mr. Fleming desired me to send the tracings, there being very few of figures 1 and 2 built.

[569.]

DALHOUSIE, 18th July, 1872.

DEAR SIR,---I have this evening on my return, from an absence of some days, on the upper end of the District, received your two telegrams of yesterday and to-day, asking about the returns of the measurements of work still to be done on Contracts 3, 6, 9, and 15. The quantities of the Engineers in charge of these contracts were carefully gone into some few
 8120 months ago, and then a comparative statement made, showing the difference and as the Engineers asserted, the errors between their quantities and those of the contractors. And again, in making up the certificates for 31st May, the Engineers were directed by Mr. Fleming to make their measurements as accurately as possible, so as to give most trustworthy grounds for comparison with the quantities of the Engineers then commencing to measure the works on behalf of the contractors, so that I would say the residue left by deducting the quantities of work executed on the 30th June last, according to the Engineer in charge, from the total quantities of Mr. Flemnig's last revised schedule, will be as accurately as possible the quantities remaining to be done according to the views of the Engineer-in-Chief. I believe, but I am not sure, that the "comparative statement" above
 3130 referred to, was intended for transmission then to headquarters, but that it was retained in consequence of Engineers being employed to measure on behalf of the contractors, and I understood from Mr. Fleming, when he was lately on the work here, that now before reporting to headquarters, a comparison of quantities shall be made between the Engineer of the Commissioners and those acting for the contractors, that errors may be investigated and corrected and differences adjusted as far as possible. The contractors determined to measure only Nos. 6 and 9 for the present. I understood three weeks ago that the measurements of No. 9 were then nearly completed, and from enquiry made this evening, I am of opinion the measurements of No. 6 are now nearly completed; but I have had no official information on the matter. I thus state the case, but I cannot say when the results
 3140 of the measurements will be brought out; but I shall make enquiry, and, as far as I am concerned, bring about the settling of the quantities with as little delay as possible.

Yours truly,

(Signed,)

L. G. BELL.

RALPH JONES, Esq.

[570.]

DALHOUSIE, 1st July, 1872.

DEAR PETERSON,---I have looked for some specification for wooden bridges to carry roads over the railway, but I have not found any. At any rate, the timber that I saw on No. 15 is very unsuitable. There ought to be no sapwood at all in it; it ought to be good timber as to texture, and it ought to be sawn, or more truly and carefully hewn than, I
 3150 fear from the samples that I saw, it is likely to be if hewn timber be admitted. The usual specification, "free from saps, shakes and large knots," ought to be strictly adhered to.

Yours very truly,

(Signed,)

LEONARD G. BELL.

[571.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.
BATHURST, 2nd July, 1872.

MY DEAR BELL.

* * * * *

I shall call Mr. Bertrand's attention to the quality of the timber he has delivered for
3160 cattle guards and road bridges.

Yours truly,

(Signed,) P. ALEX. PETERSON.

[572.]

DALHOUSIE, 2nd July, 1872.

DEAR SIR,—When passing up from Bathurst a few days ago, I saw, with Mr. McMillan, a plan for the 20 foot beam culvert for Fournneau Brook. The plan is not such as Mr. Fleming would approve for that place, and as Mr. McMillan did not know anything of any later plan, I send you a tracing of part of sheet 22 of the General Plans, which will give a culvert for Fournneau Brook, with 140 cubic yards less masonry than that which Mr. McMillan had prepared. I intended to prepare a plan, but I have for several days been
3170 suffering from something of lumbago, which has made me unfit for any work.

Yours very truly,

(Signed,) LEONARD G. BELL.

C. ODELL, Esq.

[573.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
BELLEDUNE, 3rd July, 1872.

MY DEAR SIR,—I found on measuring up the work for the past month that the contractors have been scratching all over the contract and going over old side borrows, &c., which has taken up more time to arrive at the quantities than I anticipated. I had hoped
3180 to have got it off to-night had the mail kept open until this moment, but I find it impossible to finish, as the coach will be here in a few minutes.

I will send it by to-morrow's mail without fail.

Yours very truly,

(Signed,) CHAS. ODELL.

L. G. BELL, Esq.

[574.]

DALHOUSIE, 6th July, 1872.

DEAR SIR,—Herewith I send you certificates for work done during the last month on all the Divisions of this District, except No. 3, the certificate for which I shall probably send on Monday next. Mr. MacLeod is a good deal pressed by the amount of work he has
 3190 going on. * * * * *

From No. 9 I have not yet received any statement for last week, but from having walked over several miles of the section, I know that in a few places the work is going on well, though at these places there were not many men employed. A large culvert at Fournneau's Brook is about to be commenced, and also some smaller culverts. In the excavation for Fournneau's Brook I found by the foreman's statements of the time spent, that the amount of excavation did not much exceed two cubic yards per man per day, the stuff being at the same time easy to excavate. I spoke of this to the contractor, and he expressed his knowledge that the men do not work enough, but that he is at their mercy, as if he finds fault with them they leave their work, and he states that the high rate of wages
 3200 induces this independence. I had occasion to find much fault with some masonry in the course of building, I spoke about this to the Inspector, who, though I believe well qualified in knowledge to be an Inspector, is not otherwise well qualified for a wide charge. I dare say he would do very well if in charge of some large pieces of work that he could live close to, and which he would not have to move from during its execution.

With Mr. Peterson, on No. 15, I had occasion to find fault with some masonry at Peter's stream, the foreman there requiring much judicious watching; but both Mr. Peterson and the Inspector there, are energetic in the matter of masonry. I understand the work in the large cutting west of Nipissiguit River will soon be in vigorous progress.

The estimates show nearly \$60,000 for the month of June on Sections 3, 6, 9 and 15,
 3210 but \$58,000 of this is due to the 2½ per cent. in their item Q on No. 3, now for the first time paid.

I remain, dear Sir,

Yours very truly,

(Signed,) LEONARD G. BELL.

S. FLEMING, Esq.

[575.]

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

OTTAWA, 12th July, 1872.

MY DEAR SIR,—I asked Mr. Hazlewood to send you Mr. William Patterson, who I
 3220 believe to be a good Inspector of Masonry. I also sent you McCrea the other day. With these, I hope you will be able to keep a vigilant supervision over the masonry works. If, however, you find it necessary to get another inspector, I must leave the matter in your own hands, and request you to select the very best man you can get and give him the necessary instructions, informing the paymaster thereof.

I leave for the Far West in two days, and during my absence, I must look to you to carry on the works throughout the whole of your district in as satisfactory a manner as possible, having every confidence in your ability to do so. I see by telegraph received to-day that the west abutment of the Restigouche Bridge is on soft ground to a considerable depth. We had a similar case on Section 14, and I designed a foundation to meet the
 3280 difficulty. I have asked Mr. Hazlewood to send you a copy of the plan referred to, which I think, will answer the purpose required at the Restigouche.

I have asked Mr. Forrest to make a sketch of this system of foundation for the Restigouche abutment, which, if ready before I take my departure, will be inclosed in this letter.

With regard to the works generally, while being moderate and reasonable in all things connected therewith, and while assisting the contractors in every legitimate way, you will consider it your duty, primarily, to see that everything is carried out substantially according to plans, specifications and instructions received from me from time to time, verbally and in writing. Hoping that everything will go on satisfactorily during my
 3240 absence, and that I will find everything in a forward state on my return.

Believe me, yours faithfully.

(Signed,) SANDFORD FLEMING.

LEONARD G. BELL, Esq.,

Dalhousie.

[376.]

INTERCOLONIAL RAILWAY,
 ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.

BATHURST, 12th July, 1872.

DEAR BELL,—Yours of the 8th inst. was only received this morning.

Thompson has been going over No. 15 for the purpose of seeing where reduction
 3250 may be made. Will you be down before the next estimate? I think before that time all the foundations will be out that we supposed concrete would be required in, and if concrete is not required, I suppose the concrete may be returned as finished. Between Stations 89 and 100, contractor has put up the fence 66 feet from the centre line instead of 75 feet, which is the width of land we have taken. Shall I allow the fence to remain where it is it is through woods and the line has only been cleared 66 feet wide?

Yours very truly,

(Signed,) P. A. PETERSON.

* * * * *

[577.]

INTERCOLONIAL RAILWAY,
OFFICE OF THE CHIEF ENGINEER,
TORONTO, 15th July, 1872.

3260

* * * * *

With regard to Sections 3, 6, 9 and 15, the Commissioners are aware that the work on these sections is being re-measured by Engineers appointed by the contractors. I hoped that the result would have been at least partially known before my departure for the Far West, but up to this moment I have not received any returns whatever.

I instructed Mr. Bell, District Engineer, so soon as the contractors' Engineers finish their labours, to obtain from them a copy of their detailed measurements, to go over these measurements and quantities carefully, and wherever they were found to disagree with the measurements and quantities obtained by our own Engineer in charge, to institute a re-examination in these cases, and thus set at rest any difference that may be discovered. There will be no serious difficulty in this way in getting a revised bill of quantities, the accuracy of which will be admitted alike by our own and the contractors' Engineers.

Having procured such a bill, verified as above, it will form a new and true basis for future certificates, and the contractors will get the full benefit of all reductions which we have been enabled to make.

So soon as Bell forwards to my office in Ottawa the revised bill referred to, Mr. Burpee, in my absence, will work it out in the usual way, and submit the result to you.

In the meantime, it is due to the contractors that I should report favourably of the work they have done and are doing. Three out of the four sections are in a very advanced state, and they are undoubtedly doing everything they possibly can to have the whole work finished in a satisfactory manner, with as little delay as possible; their expenses are, however, very heavy. I am informed that their monthly outlay is greater than the certificate amounts.

They are extremely anxious to get from the Commissioners advances to cover current expenses, provided the result of the re-measurements are much longer delayed.

Yours very truly,

(Signed,) SANDFORD FLEMING.

RALPH JONES, Esq.,
Secretary.

3290 [578.]

CANADA AND UNITED STATES TELEGRAPH CO.

15th July, 1872.

By Telegraph from Bathurst
To L. G. BELL.

Is fence to be placed on sixty-six foot line through woods or follow boundary of width purchased through clearing?

(Signed,) CHAS. ODELL.

[579.]

17th July, 1872.

By Telegraph from Ottawa

To L. G. BELL.

3300 When may we expect the returns of the measurements of work still to be done on Sections 3, 6, 9 and 15? They are badly wanted.

(Signed,) R. JONES,
Secretary.

[580.]

18th July, 1872.

By Telegraph from Ottawa

To, L. G. BELL.

No answer to my telegram of yesterday; Sir George Cartier anxious to know. Please reply.

(Signed,) RALPH JONES.

3310 [581.]

DALHOUSIE, 18th July, 1872.

DEAR SIR,—I have, this evening, on my return from an absence of some days on the upper end of the District, received your two telegrams of yesterday and to-day, asking about the returns of the measurements of work still to be done on Contracts 3, 6, 9 and 15. The quantities of the Engineers in charge of these contracts were carefully gone into some few months ago and then a comparative statement made showing the differences and, as the Engineers asserted, the errors between their quantities and those of the contractor. And, again, in making up the certificates for 31st May, the Engineers were directed by Mr. Fleming to make their measurements as accurately as possible, so as to give most trustworthy grounds for comparison with the quantities of the Engineers then commencing to measure the works on behalf of the contractors; so that I would say the residue left by deducting the quantities of work executed on 30th June last, according to the Engineer in charge, from the total quantities of Mr. Fleming's last revised schedule, will be, as accurately as possible, the quantities remaining to be done according to the views of the Engineer-in-Chief. I believe, but I am not sure, that the "comparative statement" above referred to was intended for transmission then to headquarters, but that it was retained in consequence of Engineers being employed to measure on behalf of the contractors; and I understood from Mr. Fleming, when he was lately on the works here, that now before reporting to headquarters a comparison of quantities shall be made between the Engineer of the Commissioners and those acting for the contractors, that errors may be investigated

3330 and corrected, and differences adjusted as far as possible. The contractors determined to measure only Nos. 6 and 9 for the present. I understood three weeks ago that the measurements of No. 9 were then nearly completed, and from enquiry made this evening I am of opinion the measurements of No. 6 are now nearly completed, but I have had no official information on the matter. I thus state the case, but I cannot say when the results of the measurements will be brought out; but I shall make enquiry, and as far as I am concerned, bring about the settling of the quantities with as little delay as possible.

Yours truly,

(Signed,) LEONARD G. BELL.

RALPH JONES, Esq.

3340 [562.]

MADISCO, 18th July, 1872.

DEAR SIR,—Would you have the kindness to let us have the plans and proportions of wooden bridges and beam culverts, with signs of public roads to complete No. 9? We would also like to know the exact places of farm crossings, and have the demarcation of the fence according to our demand of the 22nd ultimo.

We beg to inform you that we have taken all the necessary measures to have Section 9 completed in October next. As the informations that we are now asking are indispensable to finish, we sincerely hope that you will, as soon as convenient, comply with our demand, in order to afford us time to get some iron works done either at Quebec or St. John.

3350

We remain, dear Sir,

Yours very truly,

(Signed,)

J. B. BERTRAND & Co.

CHARLES ODELL, Esq.,

Division Engineer,

Contract No. 9.

[583.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RISTIGOUCHE DISTRICT.

SECTION 9, 18th July, 1872.

3360 My DEAR SIR,—The contractors have applied to me for plan and specification for sign boards at public crossings.

If you have them in your office, will you please send me a copy at your earliest convenience, that I may furnish them with one.

Yours very truly,

(Signed,)

CHAS. ODELL.

L. G. BELL, Esq.

[584.]

DALHOUSIE, 22nd July, 1871.

MY DEAR SIR,—To suit the stone which can be obtained from the quarries in the vicinity, the Chief Engineer will permit the eight feet arch culvert, Stations 143 and 50, Section 9, to be changed to a double box culvert according to General Plan, sheet No. 4, but 3370 each opening to be four feet wide and six feet high, which will require a corresponding increase in the thickness of the wall. I have just returned home and have not had time to consider the matter, but shall do so on Monday; meanwhile, the following sketch of cross section will be about right as to dimensions.

(Sketch.)

The top course forming a corbel of six inches projection must go through the wall.

Yours most truly,

(Signed,) M. SMITH.

CHAS. ODELL, Esq.,

Division M.

3380 [585.]

DALHOUSIE, 25th July, 1871.

MY DEAR SIR,—I have had several times to complain of Inspector Fotheringham's inattention to the stone cutting for first-class masonry, and on the Chief Engineer's late inspection of the works, he was so much dissatisfied with many of the stones cut near the Nipissiguit Bridge (which were gouged out in the centre leaving but a narrow margin for bearing surface) that he has ordered me to have them re-cut so as to give sufficient bearing surface; he was also much dissatisfied at not meeting Mr. Fotheringham on any part of the works, and has requested me to place Mr. Jamieson as Inspector on Section 15, who has had great experience in granite works. Mr. Fotheringham can take Section 9, where I hope he will be more diligent and give satisfaction. Let these changes commence on the 3390 1st August. Please give copy of this to Mr. Odell, so that he can inform Mr. Jamieson.

Yours truly,

(Signed,) M. SMITH.

P. A. PETERSON, Esq.,

Division N.

P.S.—I have not heard whether the Commissioners have started.

M. S.

[586.]

[TELEGRAM.]

2nd August, 1872.

To SANDFORD FLEMING,
Fort Garry.

* * * * *
3400 Section (15) fifteen much as usual. Four hundred men. Big cutting at Nepissiguit
going on.

(Signed,) L. G. BELL.

[587.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
SECTION No. 9 (M.)

BELLEDUNE, 5th August, 1872.

DEAR SIR,—Herewith I enclose the estimate for work done during the month of July,
I hoped to have been able to have sent it off on Saturday; but owing to their having worked
all over the contract, it was very tedious getting up the measurements in many of the old
3410 borrows, which detained me.

Yours very truly,
(Signed,) CHAS. ODELL.

L. G. BELL, Esq.

P.S.—Did you receive my telegram respecting the fencing. Please let me have a
reply.

(Signed,) C. O.

[588.]

DALHOUSIE, 7th August, 1872.

DEAR PETERSON,—Your letter of 12th July came here when I was up the Metapedia.
You will readily understand how it was first overlooked, and then forgotten until to-day,
3420 when it has turned up in arranging my papers. I have just written to Odell on the subject
of the width between fences in the bush, saying that in a similar case on No. 6, Lawson and
I had decided to put up the fence say three feet from the side ditch, and mark the land
belonging to the railway by cutting a boundary line through the bush, and let the trees
fall on and lie on the boundary. We cannot ask the contractors to clear out to the outside
of the land, and a fence in the bush is not of much value, so that if your fence referred to
is now built, as I suppose it is, you may let it stand where it is.

Yours very truly,

(Signed,) LEONARD G. BELL.

[589.]

DALHOUSIE, 7th August, 1872.

3430 DEAR SIR,—Your telegram of 15th July, about the fences, came here in my absence up the Metapedia; but although I saw the telegram on my return it escaped my attention on account of other matters, and I afterwards forgot it altogether, my time and attention being much occupied by a serious illness of Mrs. Bell.

LAWSON, on No. 6, had a similar question about fences through bush, and he and I decided that it is better to build the fence only a few feet outside of the side ditches, say three feet, and mark the boundary of the land belonging to the railway, by cutting a line on the boundary, and letting the trees fall and lie on the line. Do you think this will do? Of course, the fence in clearing will be on the outside of the land taken.

Yours very truly,

(Signed,)

LEONARD G. BELL.

3440

C. ODELL, Esq.

[590.]

QUEBEC, August 10, 1872.

SIR,—Will you kindly, and at as early a day as possible, send us a cash statement of the four New Brunswick Sections, 3, 6, 9 and 15, up till date, and at the same time send us copies of the progress estimates for July. We are greatly surprised at the lowness of the July warrants, knowing as we do from the report of our Engineers how rapidly the work is being pushed through. Were any changes made in the rates for work done in July, or were the calculations made on the rates ruling for some time past? We cannot but think there is a grave error, and would be obliged by your enquiring into it and communicating the result.

3450

When is it likely there will be a meeting of the Commissioners to take into consideration the memorial sent.

We are yours truly,

(Signed,)

GLOVER, FRY & Co.,

DUNN & HOME.

RALPH JONES, Esq., Secretary,

Intercolonial Railway Commissioners.

[591.]

10th August, 1872.

By Telegraph from St. John
3460 To L. G. BELL.

How are the measurements now on the four contracts, 3, 6, 9, and 15? Most important we should know their positions. Answer to Halifax.

(Signed,) C. J. BRYDGES.

[592.]

INTERCOLONIAL RAILWAY,
ENGINEERS OFFICE, RESTIGOUCHE DISTRICT,
BATHURST, 10th August, 1872.

DEAR BELL,—

* * * * *

I have just come down from examining the foundation of Louis' Brook, Station 107. The upper end has been taken out to within a foot of the proper depth, and a crowbar can be
3470 quite easily run down four feet, and the bottom is not hard there, but the soft, sticking mud prevents the bar going down so easily. When the bar is drawn out streams of water flow out through the holes.

Bertrand thinks that if two feet below the masonry be taken out and boulders packed in the soft mud, and on this two courses of timber and concrete be built, that the foundation will be quite safe.

(Sketch.)

The plan will be something like this. Do you think it will do? As the lower end is hard, I would be afraid of unequal settlement, unless all the soft material were removed. This foundation has prevented my taking the leave you so kindly gave me.

3480

Yours very truly,

(Signed,) P. ALEX. PETERSON.

[593.]

MONTREAL TELEGRAPH COMPANY.
10th August, 1872.

To J. B. BERTRAND,
Bathurst.

Has Thompson finished his measurement and report? Could you let me see them?

(Signed,) L. G. BELL.

[594.]

MONTREAL TELEGRAPH COMPANY,
10th August, 1872.

3490 To CHAS. ODELL,
Metapedia.

Please say immediately if Thompson's measurement and quantities are finished, where they are, and how they agree with yours.

(Signed,) L. G. BELL.

[595.]

MONTREAL TELEGRAPH COMPANY,
DALHOUSIE, 10th August, 1872.

To C. J. BRYDGES,
Halifax.

Thompson's measurements and quantities of Section 9, made out ten days' ago, but have not seen them; have asked contractor for them.

3500 Fitzgerald's measurements of Section 6 are made, but quantities will not be ready for a few days. No measurements of 3 and 15.

(Signed,) L. G. BELL.

[596.]

12th August, 1872.

By Telegraph from Bathurst
To L. G. BELL.

I telegraphed Berlinguet to let you see the Thompson report for No. 9.

(Signed,) J. B. BERTRAND.

[597.]

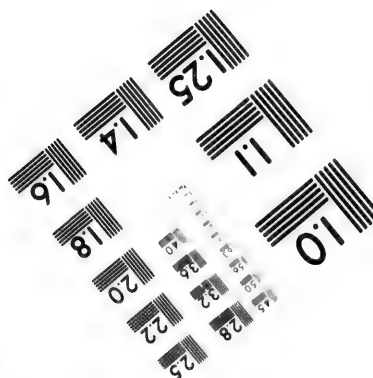
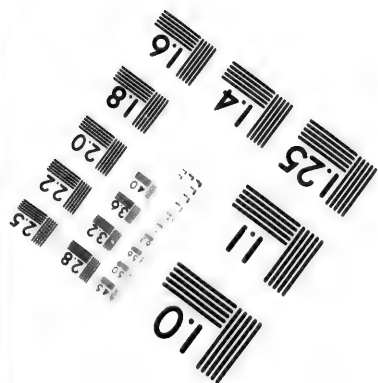
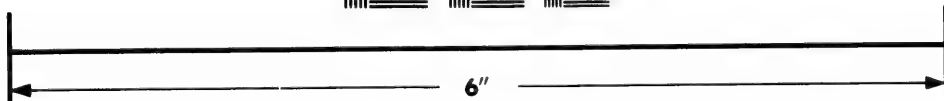
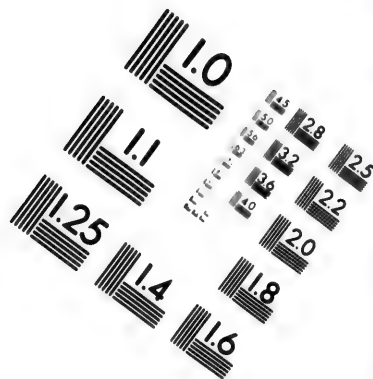
DALHOUSIE, 12th August, 1872.

3510 DEAR PETERSON,—I do not believe the plan proposed by Bertrand for the foundation at Louisa Brook would be good; the water streaming up out of the trial holes seems to me to indicate something bad at the depth of four feet, and also that the hard bottom is not much farther down. At any rate a timber platform would never do on top of stuff that water wells up through. Excavate a little lower and try the bar again.

Yours very truly,

(Signed,) LEONARD G. BELL.

P. A. PETERSON, Esq.,
Bathurst



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28 25
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10

[598.]

MONTREAL TELEGRAPH COMPANY.

DALHOUSIE, 14th August, 1872.

3520 To RALPH JONES,
Ottawa.

Work remaining on contract 9 (nine). Estimate of Contractors' Engineer received yesterday. Have examined it. Believe no items difficult of settlement except rock and clay cuttings, which require close examination, perhaps on ground, which I shall give early next week on Odell's return from a short absence.

(Signed,) L. G. BELL.

[599.]

DALHOUSIE, 14th August, 1872.

DEAR SIR,—I will have to go minutely into a check of the quantities of earth and rock cutting to find out the cause of a great difference between Mr. Thompson's quantities of
3530 work to be done on Contract 9, and Mr. Odell's quantities. If you have any of the papers giving the details of the measurements of work done, or the details of the gross quantities, please put them in order as soon as possible. I shall most likely ask for them at the beginning of next week at the farthest; sooner, if Odell should make his appearance sooner.

Yours very truly,

(Signed,) LEONARD G. BELL.

J. T. McMILLAN, Esq.

(606)
L. G. BELL, Esq.,

QUEBEC, 20th August, 1872,

Dalhousie :

MY DEAR SIR,—This will be handed to you by Mr. Wm. Blumhart, who goes down to Dalhousie in charge of the money for last months' pay lists on the four sections ; he is entirely in the confidence of myself and the other securities, and we have gone into a number of details with him to be discussed and talked over between yourself, the contractors and him, and in so doing, I would wish you to be as free and open on all matters connected with the sections, as if you were talking with myself.

10

I am, dear Sir,

Yours truly,

(Signed)

JOHN S. FRY,

(607)

(By Telegraph from Quebec,)

22nd August, 1872.

To L. G. BELL :

It is important that you get particulars about measurements on three, six, nine and fifteen, and make your report upon them by the end of this month. What we want is a verification by you of the quantities of work required to be done to complete contract. Let the Secretary have this without fail.

20

(Signed)

C. J. BRYDGES.

(By Telegraph from Dalhousie.)

(608)

To C. J. BRYDGES:

22nd August, 1872.

Quebec :

Only numbers six (6) and nine (9) have been measured by engineers on behalf of contractors. Six not quite finished yet. Am I to report on all four or only on the two thus measured.

(Signed)

L. G. BELL.

(609)

(By Telegraph from Trois Pistoles.)

28rd August, 1872.

30

To L. G. BELL :

Yes, report on all four sections, shewing actual amount of work still to do on each.

(Signed)

C. J. BRYDGES.

(610)

DALHOUSIE, 28rd August, 1872.

DEAR PETERSON,—Brydges telegraphs to me "report on all four sections, showing actual amount of work still to do on each." This he wants at the end of the month ; of course I cannot give this report just at the end of the month, but I must very soon after.

So please make your measurements as soon as you can and as explicitly as possible, that I may see from your papers what dimensions you may have taken, without my going over
 40 the ground to take my own notes for the verification that I am asked for of the quantities stated of work yet to be done.

Yours very sincerely,

(Signed)

LEONARD. G. BELL.

We must meet to examine the quantities, either by your coming up or my going down.

(611)

28rd August, 1872.

DEAR PETERSON,—I have had a conversation with McLeod about paying something on account of works dispensed with—such as the greater part of your concrete—and we have come to the conclusion that it is best to pay for such work in the Omissions and Contingencies
 50 until such time as the schedule shall be re-adjusted—and this will not falsify any of the quantities. This supposes that the work dispensed with is not counterbalanced by additional work elsewhere and of the same kind—that is, if a culvert of 50 cubic yards is left out and that other culverts have their schedule quantities increased in the gross by 50 cubic yards, of course there will be no payment on account of the culvert left out. Then, supposing 400 cubic yards of your concrete will not be required—and as 50 per cent. of all your work is done, add to the 2½ per cent. on the amount for work actually done, 50 per cent. of the value of the concrete that will not be required.

Yours very truly,

(Signed)

LEONARD. G. BELL.

60

(612)

INTERCOLONIAL RAILWAY,

Engineer's Office, Restigouche District,

BATHURST, 21th August, 1872.

DEAR BELL,—Yours of the 23rd asking for amount of work yet to be done, was only received yesterday morning, and as to-day is as wet as wet can be, I have, of course, made but little progress. Your letter would seem to ask for *measurements* of all works to be done, but I don't imagine you mean me to take new measurements of all the earthwork. The original quantities are checked most carefully, and the quantities in the revised schedules were taken out carefully from cross sections, and they agreed with the original quantities, save where changes at grade had been made. Then, last winter, I went over the work done, and again
 70 at the end of May 1872, checked bank against cut and found all correct. So I suppose you will be satisfied with this for the earthwork.

The masonry and the paving, &c., I will have to go over, as some changes have been made, some foundations are on rock where earth was expected, &c., which has reduced the quantity to a slight extent.

I can have this all ready for you by Friday night, and if we could meet on Saturday, might arrange it all.

* * * * *

Please let me hear from you as soon as possible.

Yours very truly,

80

(Signed)

P. ALEX. PETERSON.

(618)

28th Aug., 1872.

DEAR PETERSON,—I do not mean that you should measure on the ground all the works, but to be able to show me, by your papers, your figures and dimensions, so that I may be able to make some check of your calculations and statements of gross accounts. Could you come up by the "Rothsay Castle" on Saturday.

Yours very truly,

(Signed)

LEONARD. G. BELL.

(614)

DALHOUSIE, 29th Aug., 1872.

RALPH JONES, Esq.:

90

DEAR SIR,—In obedience to orders which I have received, I beg leave to submit to the Commissioners the following report on the work remaining to be done on Contracts 6 and 9. This report is somewhat later than could have been desired, chiefly because of the late date at which the statements of the contractors came into my hands. I received the statement for Contract No. 9 on the 18th inst., and that for Contract No. 6 only on the evening of the 28rd inst. I have gone, with the engineers in charge of these sections, into a close and careful examination of the various quantities, and I submit the accompanying statements, fully believing that they represent, as nearly as possible, the true state of the works:

* * * * *

100

Contract No. 9.

The statements, both for engineers and contractors, are for the work as it was on 1st July, 1872.

The contractors' statement gives 30.86 acres of clearing as remaining to be done, against 50 acres reserved by the engineers. All the cutting is done, and the amount reserved is for piling and burning; but the value of the difference is not of much account.

In "fencing," the engineers for the contractors measured all the fences that had been erected, but some were only for temporary use, and a large quantity had been condemned by the Engineer-in-chief. In this case I take the statement of the engineer in charge as correct. In "excavation" I have gone closely into the quantities with Mr. Odell without

110

being able to make any serious change in the quantities of work done as set forth in the certificate for 30th June, except in one case, where about 5,000 cubic yards may be added to the quantity of earth. In many cases the contractors' statement shows more work to be

done than that of the engineer's, and in these cases I accept the less quantities. In several places the amount of total excavation in the contract has been lessened, partly by a recent change of grade and partly by the amount reserved for shrinkage of embankments proving more than necessary. Still, in the cuttings on the line, the contractors' statement shows 10,888 cubic yards of rock and 118,590 cubic yards of clay, against the engineers' 11,257 of rock and 120,971 of clay. But in the other earthworks, in drainage and approaches to level crossings, the contractors' statement gives very much too little as that required.

- 120 There is yet comparatively very little done in these works. As I have before stated, the Engineer-in-chief lays great stress on the thorough drainage of the road bed, and as a great deal of Contract No. 9 runs through flat, undrained land, the drainage works will necessarily be much heavier than the engineer who measured the works on behalf of the contractors seems to have calculated on.

The contractors' statement shows only 8,300 cubic yards for drainage yet to be done. The quantity reserved by the engineers (34,000 cubic yards) will be fully required to carry out the views of the Engineer-in-chief. In the item of approaches to level crossings the contractors' statement shows only 5,598 cubic yards to be done. This is quite inadequate, very little (8,600 cubic yards) being yet done out of a total of 15,000 cubic yards. On the

- 130 whole excavations, however, I have reduced the total quantities by about 1,000 cubic yards of rock and 80,000 cubic yards of clay, partly by the changes and modifications above mentioned, and partly by my calculations of what is required turning out a less quantity than that shown in former schedules. The contractors' statement does not mention "under-drains." The quantity in the schedule will be fully required.

The 70 cubic yards of "riprap" given in the contractor's statement is quite inadequate. Several bridges require a considerable quantity, and also the embankment in the mill dam at Armstrong's Brook, though it is possible this last may not require quite so much as is reserved for it, as there are indications of the cutting, out of which the embankment is being made, turning out some rock.

- 140 The concrete in the former schedule is not likely to be required, and therefore a reduction from total quantities may be made in this item.

In masonry, some changes have recently been made which warrant a permanent reduction of about 70 cubic yards. This will reduce the quantity reserved to somewhat less than that in the contractors' statement. The paving, according to former schedules, is now reduced by 200 cubic yards on account of some culverts having been founded on solid rock. The quantity reserved now will all be required—one bridge now in building requiring alone 98 cubic yards, and two others 50 cubic yards.

In the items "Foundations," "Bridges," "Superstructure," and "Road Crossings and Diversions," there is no material difference between the two statements.

- 150 The only "special work" is the tunnel at Armstrong's Brook. The contractors' statement makes no mention of this, but the Engineer-in-chief, on a recent inspection, expressed his opinion that the tunnel would require to be built with masonry. In this case all the cement reserved is necessary.

I have the same remark to make in reference to the item of "Omissions and Contingencies" that I made when writing of contract No. C. Calculating the value of the reductions by the schedule of prices established by the Engineer-in-Chief the amount comes to \$112.84, and the percentage of work done at 1st July was 61.02. The percentage then due on the \$112.84 would be, say, 68, equal to \$7,077; add the value of earth omitted \$1,250, and the sum \$8,827, is the amount to which the contractors are entitled, in addition to the amount 160 of the June certificate.

I have been directed to report also at this time on contracts Nos. 8 and 15, but your telegram of 17th May last, and the fact that the contractors were getting only Nos. 6 and 9 measured, led me not to expect this until I received the order a few days ago. It is out of my power to make this report in due time to forward with that for Nos. 6 and 9, but I have arranged with the Engineer in charge of Nos. 8 and 15 to go immediately into their measurements for this month, so as to make the certificates as nearly correct in all particulars as it is possible.

I remain, dear sir,

Yours very truly,

170

(Signed)

L. G. BELL.

(615)

INTERCOLONIAL RAILWAY.

Contract No. 9.

STATE OF WORKS ON 80TH JUNE, 1872.

Description of Work.		Total Quantity in Contract.	Work done.	Work to be done.
Clearing, close cutting and grubbing...	acres	500	450	50
Fencing.....	lineal feet	225,000	15,000	210,000
Rock cutting.....	cubic yards	65,974	52,225	13,749
Clay cutting.....	do	451,766	264,662	167,104
180 Underdrains.....	lineal feet	6,500		6,500
Riprap.....	cubic yards	1,200		1,200
Concrete.....				
First-class masonry.....	do	2,318	2,140	478
Second-class masonry.....	do	4,517	3,191	1,326
Paving.....	do	690	478	212
Foundation work.....		500	450	50
Bridge superstructure.....		4,820		4,820
Beam Culvert superstructure.....		681		681
Road crossings and diversions.....		6,775	2,862	3,913
190 Special works.....		12,000	4,625	7,375
Materials delivered.....			2,850	
Omissions and contingencies.....		16,026	12,359	3,667
Totals.....	\$	854,897	224,885	180,012

(Signed

LEONARD G. BELL.

(616)

DALHOUSIE, 31st August, 1872.

Messrs. J. B. BERTRAND & Co. :

DEAR SIRS,—I have forwarded to the Commissioners my report on the state of the work on contract No. 9 on 1st July last, and as I have been asked to do in the similar case on contract No. 6, I now send you the general particulars of my report.

- 200 I state that in the item of "clearing," there is very little difference of value between your statement and that of the Engineers.

That the Engineer who lately measured the works for you had measured all the fences that have been put up, whereas some were only for temporary use, and a great deal had been condemned by the Engineer-in-Chief.

- 210 That I have examined closely the quantities of work done in excavation without finding anything to change except about 5,000 cubic yards of earth to be added. That in many cases the quantities in your statement of work yet to be done are greater than those reserved by the Engineers, but that I adopt the less quantities. That in the total line cuttings there is a difference between the two statements of 969 yards of rock and 7,981 of clay, but that your statement shows only very little drainage work to be done, whereas there has been very little done, and the Engineer-in-Chief requires a great deal. That the quantity you show as yet to be done in approaches to level crossings, &c., is quite too little. But that on the whole excavations, I am able to reduce the gross original quantities by about 80,000 yards of clay and 1,000 yards of rock.

That your statement makes no mention of "under drains."

That the quantity of riprap which we have retained may possibly be a little in excess, if the cutting out of which the embankment at Armstrong's brook is being made should turn out some rock, but that otherwise this embankment and some bridges will take up very much more than the 70 yards you have allowed.

- 220 That I believe the concrete will not be required, and that this item may be deducted.

That the gross original quantity of masonry has been somewhat reduced, so that now our quantity reserved is less than yours.

That I have reduced the original quantity of paving, and the quantity now reserved, 212 cubic yards, will all be required, as one bridge alone requires 98 cubic yards, and two others 50.

That there is no material difference between your statement and ours in the items "foundations," "beam culvert superstructure," and "road crossings."

That there is no mention of bridge superstructure in your statement, the value of which is \$4,820.

- 230 That the Engineer-in-Chief has expressed his opinion that the tunnel at Armstrong's Brook will yet have to be lined with masonry, and that your statement shows nothing for this work.

That the Engineer-in-Chief reserves an amount for omissions and contingencies, which he pays out in instalments as the work proceeds, if no necessity arises for it.

That the value of the reductions above mentioned is \$112.84. That the per centag of the gross work done on 1st July was about 68. That 68 per cent of \$112.84 is... \$70 77
That the value of 5,000 yards of earth omitted in former certificates is..... 12 50

And that the sum..... \$88 27
is the amount to which the contractors are entitled in addition to the amount of the June
240 certificate.

I remain, Gentlemen,

Yours very truly,

(Signed),

LEONARD. G. BELL.

(617)

DALHOUSIE, 31st August, 1872.

RALPH JONES, Esq.

DEAR SIR,—I find that, in my hurry last night, I have omitted the denomination of the several items of work in my statement for Contract No. 9. I now supply this omission in the accompanying sketch.

In page 10, of my report, in the clause about "foundations," "bridge superstructure,"
250 &c., I ought to have written "beam culvert superstructure." The "bridge superstructure" does not appear in the contractor's statement, and the amount reserved by the Engineers is correct.

I remain, dear Sir,

Yours very truly,

(Signed)

LEONARD. G. BELL.

(618)

DALHOUSIE, 2nd September, 1872.

DEAR ODELL,—I have changed my mind in reference to the best method in which to allow the contractors for the reduction in work. I now consider it best to make your quantities of work done correct by adding your 5,000 yards of earth (which you have done I
260 suppose) paying for all work at the old prices, (otherwise Burpee would have to get a new schedule in each case) adding a portion of the value of the amount by which the total quantities have just been reduced equal in percentage of itself, to about the percentage of gross work executed, and paying it in the omissions and contingencies embodied with the 8½ per cent of the work done, which you have rightly allowed this month. I send you a revised telegraph return and certificate. I have altered a unit in the D. and D. D. to make even dollars. Please always to fill L. M. N. O. P. Q. as I have, and send new certificates signed for Ottawa.

Yours very truly,

(Signed)

LEONARD. G. BELL

270 (619)

(Telegram.)

DALHOUSIE 8rd September, 1872.

To RALPH JONES,

Ottawa :

Certificates now telegraphed for six and nine for August, embrace result of my written report of twenty-ninth (29). Those for three and fifteen embrace the same for report now being forwarded.

(Signed)

L. G. BELL.

(620)

DALHOUSIE, 8rd September, 1872.

Amounts recommended to be paid on certificates for work done up to 31st August, 280 1872.

Contract No. 8	\$34,545
" " 6	19,842
" " 9	28,959
" " 15	18,780

(Signed)

LEONARD G. BELL.

LETTER and Statement addressed to Mr. Brydges and sent to Chairman.

To the Commissioners of the Intercolonial Railway,

Ottawa, Canada.

Private.

290 C. J. Brydges, Esq., Montreal.
(621)

QUEBEC, 4th September, 1872.

MY DEAR SIR,—Copies of Thompson's report on No. 9 and Fitzgerald's on No. 6 have been sent to the office in Ottawa. There is much in the latter I would beg you to carefully note.

On the whole, the results on these two sections confirm very closely the statement made by Birlinguet last January, both as to quantities and the amount then due to contractors, and assuming the other two sections to be nearly in the same position, which may be fairly done; the application made in January has been well sustained. Mr. Bell has been in possession for some time of copies of Fitzgerald's and Thompson's measurements. I have 300 no information of what his report on them will be, but trust it will agree sufficiently to satisfy you, and remove any further hesitation in releasing us immediately \$150,000 over and above the ordinary monthly warrants for August.

The item of interest alone on the large amount we have had to advance is a very serious one, and one calling unquestionably for full compensation. It is no light matter to be compelled as we have been to finance, when in justice, such a burden should not to have been put upon us, and might have broken us down altogether, as it has only been done by

great sacrifices and at very heavy cost ; the anxiety and trouble of which no money recompense, however large, can ever compensate.

Leaving the matter now with confidence in your hands, and hoping soon to hear 310 favorably,

I am, dear sir,

Yours truly,

JOHN S. FRY.

No. 9.

	Amount of Contract	\$854,897
	Cr.	
	By payments to 31st July.....	\$265,000
	By extra warrant in August.....	12,500
		<u>277,500</u>
	Balance in hands of Government.....	\$77,397
320	Thompson's estimate of work to be done on 1st July, calculated at last schedule rates	\$68,410
	Deduct work done in July, warrant 1.....	9,500
		<u>\$49,410</u>
		\$27,987.00

Mr. Thompson stated verbally that in the estimates of the rock, the greater part of it was loose surface rock, and it did not really represent in cost one half of what is understood by ordinary rock excavation.

WORK TO BE DONE ON 1st JULY, 1872.

	30.86 acres Clearing	at \$14 00	\$ 482 04
	187,521 L. feet Fencing... ..	" 5 00	9,876 05
330	10,888 C. yards Rock	" 0 90	9,799 80
	122,811 " Earth	" 0 25	30,702 75
	487 " First-class Masonry	" 14 00	6,818 00
	1,864 " Second-class "	" 11 00	15,004 00
	97 " Paving	" 4 00	888 00
	70 " Riprap	" 2 00	140 00
	15 pairs Cattle Guards	} say	1,500 00
	24 Signboards		
	87 pair Gates		
	4 Overhead Bridges		
340	32 Box Drains		
	21 Plain Culvert Superstructure...		
			<u>\$74,160 00</u>

LESS MATERIALS DELIVERED.

5,450 Fence Rails.....	say \$450 00	
87 pair Gates	} say 800 00	
8,172 L. ft. Cattle Guards.....		
800 C. yards stone.....	say 5,000 00	
		\$5,750 00
		\$68,410 04
350 Deduct work done in July (warrant)		19,000 00
		\$49,410 04

RALPH JONES, Esq. :
(622)

QUEBEC, 4th September, 1872.

DEAR SIR,—Enclosed we send you copies of Mr. Fitzgerald's Report on Section 6, and of Mr. Thompson's on Section 9, which please lay before the Commissioners at their first meeting.

Mr. Bell, the District Engineer, has also been furnished with copies of these reports.

Please advise us by telegram and mail what action is taken in this matter.

We are, Dear Sir, yours truly,

360

GLOVER, FRY & Co.

(628)

4th September, 1872.

(By Telegraph from Ottawa.)

To L. G. BELL :

Mr. Fleming wrote 15th July, you would send Burpee revised quantities for Sections 8, 6, 9 and 15. Please do at once, so that contractors may get any benefit therefrom.

(Signed)

RALPH JONES.

(624)

DALHOUSIE, 4th September, 1872.

To RALPH JONES, Ottawa :

370

Certificates now telegraphed for Sections 8, 6, 9 and 15 are based on the revised quantities ; and the contractors have in these certificates the fullest benefits of the revision. Will send the written figures soon as possible.

(Signed)

L. G. BELL.

(625)

DALHOUSIE, 6th September, 1872.

RALPH JONES, Esq.:

DEAR SIR,—I beg leave to submit to the Commissioners the following report on the works on Contract No. 15, as they stood on 81st August last, particularly in reference to the work remaining then to be done.

* * * * *

380

CONTRACT No. 15.

There has not been any measurement made by any one on behalf of the contractors of the works done or to be done on this contract; but Mr. Peterson, the Engineer in charge, was instructed in last May to make his measurements for the May certificate with the greatest minuteness and accuracy, as it was then expected the contractors were then to employ an engineer of their own to measure the works in their behalf. Mr. Peterson did as instructed, and he has since carried on his measurements with the same minuteness. I have carefully examined his notes and memoranda for the May certificate, and I found the checking (by measurements on distinct bases) to be such as to nullify the possibility of any appreciable error in his statement of the work done up to the end of last May, and from my examination
390 of his notes of the August measurement, I have no doubt of the equal accuracy of his statement of the work done up to the end of August.

On examination of the total quantities of work at first to be done, as set forth in the last revised schedule, I do not find that any change can be made in the quantity of earth-work, the percentage allowed for shrinkage of embankment being found by tests applied as far as they can be at present, not more than what will be necessary, and the amount in drainage, &c., will, I believe, be all required.

But still the statements of work done do not, I consider, truly represent the work to be done, for the stuff between Stations 460 and 495 is of a very unstable nature, and the embankment between 470 and 488 has slipped very much, is still slipping under recent work,
400 and the contractor has, as I am informed, declined to make up this embankment to its full dimensions until near the completion of his work. In the embankment between Stations 590 and 600, an allowance of about 2,000 cubic yards has been made for slipping; but from present evidence this quantity will be far from sufficient. Also, in the cutting from 198 to 209 the stuff that has been taken away is more or less gravel and sand, while that which remains is hard clay, to a great extent.

In the item "concrete" the old quantities may be reduced by 800 cubic yards, that have not been required. An allowance for this has been made in the August certificate.

In the item "masonry" the old quantities must now be increased, because a bridge at Station 325, that was included in the original contract was left out as unnecessary, and is
410 now, I understand, ordered to be built.

The change in the quantities in the items "concrete" and "masonry" is so trifling that I do not think it necessary to make a revised schedule at present.

I annex schedules of the new revised total quantities in contracts Nos. 8, 6 and 9, with prices adjusted, I believe, equitably; and I also annex schedules of the work done on

these contracts up to 31st Aug., 1872, valued at these adjusted prices. In these last schedules you will see that I have taken away from the item "omissions and contingencies" the allowance I had made in it for the reductions effected in these contracts, the allowance being now made in the increased prices of some of the works, and its insertion in the "omissions and contingencies" being only for temporary use.

420 I have mentioned, under the head of omissions and contingencies, the percentage of the work done that would be allowed in that item by the scale adopted by the Engineer-in-Chief. The difference between the amount of this percentage and that which I have adopted for the purpose of making the foot of the account agree with that of the certificates now gone up, is owing to the changing of the place of the allowance for reductions.

These schedules are submitted, subject to the approval of the Engineer-in-Chief.

I remain, dear Sir, yours very truly,

(Signed)

LEONARD. G. BELL.

(626)

INTERCOLONIAL RAILWAY.

CONTRACT No. 9.—Revised quantities and prices, September, 1872.

430	Quantities.	Description of Work.	Rate		Amount.
			\$ cts.	\$ cts.	\$ cts.
	500	Acres, clearing, close cutting and grubbing.	16 00		8,000 00
	225,000	Lineal feet fencing.	07		15,750 00
	65,974	Cubic yards rock cutting.	1 00		65,974 00
	877,794	" " clay cutting.	27		102,004 88
	58,972	" " rock borrowing and long hauls.	45		24,287 40
	6,500	Lineal feet under-drains.	12		780 00
	1,200	Cubic yards riprap.	8 00		8,600 00
	2,618	" " first-class masonry.	14 00		36,582 00
440	4,517	" " second-class masonry.	11 50		51,945 50
	690	" " paving.	6 00		4,140 00
		Foundations.			500 00
		Bridge superstructure.			4,820 00
	227	Lineal feet, beam culvert superstructure.	8 00		681 00
		ROAD CROSSINGS AND DIVERSIONS.			
	25	Public roads, at	180 00	8,250	
	45	Double farm roads, at	65 00	2,925	
	12	Single " "	50 00	600	
					6,775 00
450		SPECIAL WORKS.			
	186	L. ft. tunnel at Armstrong's Brook, at	80 00	5,580	
	460	C. yds. masonry in lining, at	14 00	6,460	
					say 12,000 00
		OMISSIONS AND CONTINGENCIES.			
		5 % on \$887,889.28 = \$16,866.96, say			17,557 72
		Total contract sum.			\$854,897 00

(Signed)

LEONARD. G. BELL.

(627)

INTERCOLONIAL RAILWAY.

CONTRACT NO. 9.

460 Progress estimates for 31st Aug., 1872, revised according to revised prices of Sept., 1872.

Quantities of Work Done	Description of Work.	Rate.	Amount.
450	Acres, clearing, close cutting and grubbing.	\$16 00	\$7,200 00
17,500	Lineal feet, fencing.	07	1,225 00
54,244	Cubic yards, rock cutting.	1 00	54,244 00
284,112	" " clay cutting.	27	76,710 24
40,588	" " rock borrowing and long haul.	45	18,264 60
2,558	" " 1st class masonry.	14 00	35,812 00
4,089	" " 2nd " "	11 50	46,448 50
470 547	" " paving.	6 00	3,282 00
	Foundations.		450 00
	Road crossings and diversions.		8,195 00
	Special works (tunnel bored).		4,650 00
	Materials delivered.		1,100 00
	OMISSIONS AND CONTINGENCIES.		
	8½ % on \$252,581.84 = \$8,840.85, say		9,985 66
	Total relative value of work done equal to 73.97 p.c. of contract sum (162,444)		\$262,517 00

(Signed)

LEONARD. G. BELL.

480 (628)

MADISCO, 7th September, 1872.

L. G. BELL, Esq.,

District Engineer,

Restigouche :

DEAR SIR,—At station 825, contract 15, we would like to build the culvert on the stream independent of the arch which is to be used as a crossing of the farm. In consequence we beg to solicit your kind permission, the yielding of which will much oblige,

Yours very truly,

(Signed,)

J. B. BERTRAND & CO.

per J. A. Turcotte.

490

N.B.—You will observe that the passage for the water is a beam culvert 6 feet wide and 8 feet in height ; at the utmost, therefore, a 4 foot box and 5 feet in height would give more space for the passage of the water than that asked in the bill of works.

J. B. B. & Co., per J. A. T.



(629)

OTTAWA, September 9, 1872.

Messrs. J. B. & F. X. BERTRAND,

Contractors Section No. 15,

Bathurst, N. B. :

DEAR SIRs,—I wrote you on the 11th March in regard to a claim made by Mr. James Ross, of Fredericton, Solicitor for the estate of the late Justice Spalm, and Robert Fulton, and received your reply on the 27th March, saying that you were in communication with Mr. Baldwin, of Bathurst, in reference to a settlement.

A letter was received to-day from Mr. J. Henry Phair, Fredericton, Attorney of Fulton Estate, and sending copy of his letter to you of the 20th June last, and complaining of not having received any reply. I have written Mr. Phair this morning, saying that I had called your attention to the matter, and I now request that you will please give it your immediate attention, and at the same time may I request a reply as to what you have done in the matter.

Yours very truly,

(Signed)

RALPH JONES,

Secretary.

510

(680)

BATHURST, 9th September, 1872.

DEAR BELL,—Bertrand came to me on Friday evening, and asked me to write you about the size of culvert necessary to carry the water at Station 825 (Ferguson's crossing.) He intends, if allowed, to build the two structures separate, and wants to commence the small one at once.

The only guaging I have of this stream was taken in November 12th, 1870, when the upper area was 7.1, and the lower 4.8, mean 5.7, and velocity 5.5, feet per second. When this freshet took place there was no snow on the ground, caused simply by rain; but some of the larger streams were as high as I have ever seen them, so I think that a double box culvert 2' 6" + 4 will be ample to pass the water under any circumstances. To allow for the rock face the culvert should be 8' 0" wide between the lines of pitching.

Yours very truly,

(Signed),

P. A. PETERSON.

(681)

MONTREAL TELEGRAPH COMPANY,

10th September, 1872.

To RALPH JONES,

Ottawa :

Is it an absolute order that Hon. John Ferguson's Bridge should be built at three, two, five, in Section fifteen, and not at three, two, nine. It seems to me a severe expense on the contractors without much appreciable advantage to Mr. Ferguson.

At Metapedia to-night. Assametguagan to-morrow.

(Signed)

L. G. BELL.

(682)

OTTAWA, 11th September, 1872.

To the Honourable Commissioners,

Intercolonial Railway:

GENTLEMEN,—We beg to ask that you will authorize copies of the Monthly Returns of work done on the Sections Nos. 8, 6, 9 and 15, in detail from station to station to be furnished us, commencing from December last to this, and for the future ; as the District Engineer requires a special authority from the Commissioners to do so.

540

We have the honour to be, Gentlemen,

Your obedient servants,

(Signed),

F. X. BERLINGUET & CO.,

Per W. E. B.

(688)

OTTAWA, 12th September, 1872.

GENTLEMEN,—In January last we had the honor to lay before you statements showing what work remaining to be done on Sections Nos. 8, 6, 9 and 15, on the 1st December, 1871 ; but as the same differed materially from the statements of your Engineers, you recommended us to have our measurements confirmed by Professional Engineers. In May last you kindly approved of this duty being performed by Messrs. Thompson and Fitzgerald.

550

Copies of the reports of these gentlemen have been forwarded to you, for your information, for Sections Nos. 6 and 9.

By these reports the following is the state of the works :

SECTION No. 6.

Fitzgerald's estimate of work remaining to be done on the	
15th July, 1872 *	\$111,846 00
Less work done since 15th July to 31st August, say half July	
warrant, and all the August warrant	18,500 00
Net at 31st August	\$93,846 00
Amount of warrants to 1st August, including special	
\$12,500	\$800,500
560 August warrant	10,000
	810,500 00
	\$408,846 00
Contract sum	466,946 00
Over retained by Commissioners	\$58,100 00

* If figured out at rates as per Order in Council, July, 1871, without any Reduction for materials delivered \$128,849.

SECTION No. 9.

570	Thompson's quantities monied at rates as per Order in Council 27th July, '71, showing work remaining to be done July, 1872.....	68,410 00
	Less work done since 31st August, say July and August warrants	48,000 00
	Net at 31st August.....	\$25,410 00
	Amount of warrants to 1st August, including special \$12,500	\$277,500
	August warrant	24,000
		801,500 00
		\$826,910 00
580	Contract sum.....	854,897 00
	Over retained by Commissioners.....	\$27,987 00

Making together the amount of \$81,087 due to us over and above the warrant for last month, August.

In requesting the payment of this sum of \$81,087, we will merely draw your attention to the fact that this amount is the result of careful personal measurements by Messrs. Thompson and Fitzgerald, both these gentlemen having thoroughly examined the sections they were sent to report on.

Our other sections, Nos. 8 and 15, have not been reported on, neither do we think there is any necessity for it now; but as they are fully as favorably advanced as Nos. 6 and 9, 590 it is but fair and reasonable to assume that a similar amount is also due on them. We would, therefore, with confidence, ask a further release on account of Nos. 8 and 15 of at least \$75,000.

We are desirous to push our works with all possible activity, and we rely on your kind co-operation to assist us in this object. To accomplish this, the payments we now ask are imperatively necessary.

We beg to draw your attention to the changes made in Ottawa in the returns of the District Engineer. For instance, Mr. Bell has given us a memorandum as follows:

"DALHOUSIE, 8rd September, 1872.

"Amounts recommended to be paid on certificates for work done up to the 31st 600 " August, 1872:—

" Contract No. 8.....	\$84,545 00
" " 6.....	19,842 00
" " 9.....	28,059 00
" " 15.....	18,780 00
	\$96,576 00

(Signed,)

L. G. BELL."

Now, the warrants originally advised for August were:—

	Contract No. 8.....	\$81,000 00
610	" " 6	10,000 00
	" " 9.....	24,000 00
	" " 15.....	17,000 00
		\$82,000 00

Showing a deduction from Mr. Bell's certificates of \$14,576; an explanation of which we will be obliged for.

It is impossible for us to discover any system on which the issuing of these warrants is based; apparently some arbitrary rule is followed. Certainly no one system will apply to all the sections.

620 Although only in receipt of \$82,000 on account of the \$82,000 warrants for August, you will observe, that, as a matter of account, we have given credit in the foregoing statement for the full amounts, expecting that the deduction of \$50,000 will be immediately released.

We have the honor to be, Gentlemen,

Your most obedient servants,

(Signed,)

F. X. BERLINGUET & Co.,

"

J. B. BERTRAND & Co.

(per F. X. Berlinguet.)

To the Honorable Commissioners

of the Intercolonial Railway.

(684)

OTTAWA, 18th September, 1872.

630 RALPH JONES, Esq., Secretary,

I. C. Railway Commissioners:

SIR,—We beg to enclose you herein copy of a letter addressed to our sureties by Mr. W. G. Thompson, which we have to request you to append to his report of the measurements of Section No. 9.

We are, Sir, your obedient servant,

(Signed)

J. B. BERTRAND & Co.,

(Per F. X. Berlinguet.)

(685)

29th October, 1872.

To SANDFORD FLEMING, Ottawa:

640 Section 9, road very nearly complete, but wants nearly all drainage and fences. Section 15, masonry nearly finished, but scarcely anything done all summer at big cut at Nipissiguit.

(Signed)

L. G. BELL.

(686)

1st November, 1872.

A. WALSH, Esq.:

DEAR SIR,—Last week, when in Bathurst, I met the Hon. John Ferguson, who complained to me of the decision to build his bridge in the position lately determined on by yourself and Mr. Brydges; but his complaint was chiefly based on the injury to certain water-works which he has made for the supply of his farm-yard and mill. The pipe for
 650 these water-works passes under the deep part of the embankment, now made immediately on the west of the situation in which he wishes his bridge to be built: and he desired his bridge to be built in this situation for the purpose of hereafter laying new pipes through the bridge when the present pipes shall fail, for which purpose the bridge now ordered to be built will have too high an elevation. I did not know of these pipes until after your late visit, but immediately on my knowing of them I visited the ground, and considered the matter with Mr. Odell. I stated to Mr. Ferguson that the Commissioners had no knowledge of the pipes, and that they would have no desire to interfere injuriously with them; and I proposed to give him, under the tip of the present embankment, and for the exclusive use of these
 660 pipes crossing the line of railway, a small culvert, capable of letting a man pass through, for laying and repairing. This accommodation I consider the best for all parties concerned, and therefore I would recommend it. Mr. Ferguson asked me to write to you on the subject, he saying he would write himself also.

I remain, Dear Sir, yours very truly,

(Signed)

LEONARD. G. BELL.

(687)

INTERCOLONIAL RAILWAY,

COMMISSIONERS' OFFICE,

OTTAWA, 7th November, 1872.

LEONARD. G. BELL, Esq., District Engineer,

Dalhousie:

670 DEAR SIR,—Yours of the 1st inst., in reference to the water pipes of the Hon. John Ferguson, came to hand this morning.

You were quite correct in assuring Mr. Ferguson that the Commissioners had no knowledge of the existence of the pipes, the first intimation that I had being the letter of Mr. F. I thereupon immediately wrote to the Chief Engineer, telling him that I thought Mr. Ferguson's demands reasonable, and asking him to give effect to them, either by the building of a culvert, or the placing of an iron pipe, as suggested; whichever would be most economical.

Trusting that the present arrangement will prove satisfactory, and will settle this vexed question finally,

680

I am, yours truly,

(Signed)

A. WALSH.

INTERCOLONIAL RAILWAY,
ENGINEERS' OFFICE, RESTIGOUCHE DISTRICT,
SECTION No. 9,

(688)

BATHURST, 8th November, 1872.

LEONARD G. BELL, Esq.:

690 MY DEAR SIR,—They have finished the masonry at Peter's River, and I ordered some time ago that the arch must be well coated with a good grouting of cement. This has not been done yet; and I have since thought that, as the season is so far advanced that any cement put on now would freeze before being properly set, and that if we were to cover it with good puddle-clay instead, it would answer as well, if not better. What do you think about it?

Will you, as soon as convenient, send me a copy of your notes, or a statement of what is required in the way of catch-waters, &c., in 9 and 15, as I am going into the quantities now on each, in order to get them into shape this month.

Yours very truly,

(Signed)

CHAS. ODELL.

(689)

November 21st, 1872.

(By Telegraph from Bathurst.)

700 To L. G. BELL.

Is it advisable to lay bridge seat, Grant's Brook, this season; probably ready for it Tuesday next.

(Signed)

C. ODELL.

(640)

November 23rd, 1872.

To C. ODELL,

Bathurst:

Not advisable to do any more masonry. Stopped masonry on six yesterday. Might set bridge seats with say five degrees of frost, but must see that all care is taken with mortar.

710

(Signed)

L. G. BELL.

Section No. 9. (M)

BATHURST, December 3rd, 1872.

(641)

LEONARD G. BELL, Esq.:

MY DEAR SIR,—Enclosed herewith are the monthly progress certificates for contracts 9 and 15 up to 30th November past.

I am pretty well advanced with the quantities yet remaining to be done on each, and can complete it in a few days, so soon as I receive the notes from you respecting the catch-waters, &c.

Yours very truly,

(Signed)

CHARLES ODELL.

720

(642)

December 4th, 1872.

(By Telegraph from Bathurst.)

To L. G. BELL :

Mailed certificates yesterday, both contracts ; quantities according to new basis as regards line cuttings.

(Signed)

C. ODELL.

(648)

December 4th, 1872.

(By Telegraph from Ottawa.)

To L. G. BELL :

730 Commissioners now sitting here, and anxious to have certificates. Forward returns as soon as possible. Answer when.

(Signed)

S. FLEMING.

(Montreal Telegraph Company.)

(644)

December 5th, 1872.

To SANDFORD FLEMING,

Ottawa :

After revising and reporting on Sections 3, 6, 9 and 15, subsequent to measurements by Thompson & Fitzgerald, I was ordered by the Commissioners at end of September, to ignore all former gross quantities and measurements on these sections, and to measure in the new only the work to be done. This has been done in minute detail. All deficiencies in grade levels and width being measured, and the certificates for November now gone up, made solely on the basis of this measurement, except in a few unimportant particulars yet to be regulated, though the old gross quantities are made use of for the purpose of payment.

(Signed)

L. G. BELL.

(645)

DALHOUSIE, 9th December, 1872.

SANDFORD FLEMING, Esq.,

750 DEAR SIR,—I am sorry my telegrams about the certificates for Sections 3, 6, 9 and 15 have not been so intelligible as I intended they should be. The Commissioners, when here at the end of September, gave me orders to prepare a statement by the 1st of December, of the work then remaining to be done, and they gave directions that in making the measurements for this statement there should be no notice whatever of work done, or former bills of quantities. The measurements were made accordingly. The gaps in embankments, the untouched portions of cuttings, the deficiencies from the full dimensions of cuttings and embankments, the unfinished portions of structures, and, to some extent, the undone works of drainage were measured ; and in making out the certificates of November we were obliged to make use of these measurements. I could not see how we could do this, and at the same time make our certificates in the regular form, except by deducting the quantities so obtained

from the gross quantities of the last revised schedules, and retaining the difference as the quantity of work actually done. Of course the accuracy of this depends on the accuracy of that revised schedule, and the consistency between its requirements and those of the statement of work now remaining to be done. I do not believe there is any material inaccuracy or inconsistency, but still, though I consider the certificates sufficiently accurate for current payments, I could not say, what I thought your last telegram demanded, that the quantities returned strictly represent the exact quantity of work actually done.

* * * * *

I remain, dear sir,

Yours very truly,

(Signed)

LEONARD G. BELL.

(646)

December 11th, 1872.

770

To L. G. BELL.

(By Telegraph from Ottawa.)

What has been done at Station three twenty-five, Section fifteen? What size of opening is now proposed for the two brooks; also, at what station is the under bridge for farm crossing? What clear opening should the latter be?

(Signed)

SANDFORD FLEMING.

(647)

DALHOUSIE, 12th December, 1872.

To SANDFORD FLEMING,

Ottawa:

A double box, each three feet opening at three twenty-five, Section fifteen, has been built. I have ordered, with Commissioners sanction, the farm bridge about three twenty-eight, with twelve feet wide and twelve feet high.

(Signed)

L. G. BELL.

(648)

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

OTTAWA, Dec. 12th, 1872.

L. G. BELL, Esq.,

Dalhousie, N. B.:

MY DEAR SIR,—Mr. Senator Ferguson represents to the Commissioners that he has water-pipes laid from the high land to his dwelling and farm buildings, and he asks that either a culvert be built over the water pipe so as to give access to it, or that an iron pipe be laid along side the present one ready for use in case of necessity. Would you be good enough to see if it would be practicable to carry the water pipe through the farm bridge at Station 828; and if not, get a suitable iron pipe laid, as Mr. Ferguson requests, alongside the present wooden one.

Yours very truly,

(Signed)

SANDFORD FLEMING.

(649)

DALHOUSIE, 21st December, 1872.

SANDFORD FLEMING, Esq. :

DEAR SIR,—Yesterday I received your letter of 12th instant. About two months ago,
 800 as soon as I heard first about the Hon. John Ferguson's water pipes, I examined the ground,
 so as to decide the best means of preserving the passage of the water across the railway.
 The present pipes are of wood, and cross the railway close to Station 824, and the embank-
 ment has been made over them and a short way to the east. As the pipes do not work under
 pressure, I believe that it would be impracticable to bring the water round by the bridge
 proposed at 829; I considered this point on the ground. Mr. Odell had spoken to Mr.
 Ferguson on the subject, and had proposed an iron pipe across the tip of the embankment,
 a little east of 824. But I do not think that an iron pipe under a bank 28 feet high will give
 permanent satisfaction, on account of its liability to partially fill up with rust and sediment;
 and so when I saw Mr. Ferguson a few days after my inspection, I told him of my intention
 810 to recommend a small box culvert across the tip of the embankment large enough to allow a
 man to creep through, in which he could lay his pipes when necessary, and by which he could
 have access at all times to those crossing the railway. The culvert I would make three feet
 square, and well covered with earth to protect it from frost at the two ends.

Do you approve of this, or do you think the simple iron pipe about four inches in
 diameter quite sufficient.

I remain, dear Sir,

Yours very sincerely,

(Signed)

LEONARD. G. BELL.

(650)

DALHOUSIE, 31st December, 1872.

820 SANDFORD FLEMING, Esq. :

MY DEAR SIR,—During the months of June and July last past, Mr. Fitzgerald and Mr.
 Thompson made, on behalf of the contractors, measurements of work then to be done on
 Contracts Nos. 6 and 9, and in the month of August the statements made by these Engineers
 were examined by me, as closely as I could, in conjunction with the Engineers in charge of
 those contracts. By order, I made a report to the Secretary to the effect that I considered
 certain allowances should be made to the contractors, on account of some changes, and of some
 portions of the work not having required so much stuff as had been provided for them. But,
 although the difference between our quantities thus revised, and those of Mr. Thompson and
 Mr. Fitzgerald, as far as their statements went, did not amount to very much, except on the
 830 earth-work and crib-wharfing on No. 6, where the difference is of easy adjustment, my
 report on those two contracts, and that of a slightly later date, on Contracts 8 and 15, were
 not satisfactory; and on 28th September last, the Commissioners, then on their tour of
 inspection, gave me orders to prepare a new measurement of the work remaining to be done
 on the four contracts; this new measurement to be made on a basis different from that of the
 former statements, that is, to have regard only to the work remaining to be done, and
 ignoring, altogether, all work done, and all former bills of works. These instructions I have
 had carried out as far as practicable, preserving, of course, the spirit of what I considered

your requirements for the stability and durability of the works, and I beg leave to submit to you the following statements and explanatory reports :

840

* * * * *

CONTRACT No. 9.

The difference in rock cutting is partly owing to a less quantity being now estimated for side drains in the bottom of rock cuttings.

The difference in clay cutting is owing to my having deemed it prudent, during your absence, to allow for the large deep ditches specified in your general instructions, dated 12th July last ; whereas, at the present time, I have given only the small ordinary catch drains. In many places you may still deem it necessary to have the deep ditches.

In the Under drains, I took, in August last, the quantity given by Mr. Smith as required, but I believe all I have returned will be required.

850

In riprap, more than enough was provided. Nothing of any consequence is now required except at the little Nigadoo at 994.

The only special work is the tunnel at Armstrong's Brook. This will probably require some clearing and trimming in spring. I do not know that the sheeting will be absolutely necessary, though I believe there will be a slight falling away of portions of the rock inside of the tunnel.

The road crossings include those of five so-called public roads, which are not yet opened out through the bush to the railway. These crossings will not require cattle guards and sign boards for some time ; but these works were provided for in the original bill of works, and I do not feel that I have the liberty of dispensing with them.

860

CONTRACT 15.

There is very little in the statement for this contract calling for any remark.

In the items—Riprap, Concrete, Masonry and Paving—more was provided originally than what has been found necessary. In the item, " foundation works," a larger sum might have been paid than the \$2,500 paid—as work has been done in this item since the \$2,500 became due.

The annexed statements show in two parallel columns the amount of work remaining to be done on 31st December last, both as calculated by deducting the amount of work measured as then done, and as calculated from the measurements ordered by the Commissioners on 28th September last. They are also the statements referred to in L. telegrams
870 of 2nd and 4th January, as giving explanatory particulars.

I remain,

Dear Sir,

Yours very sincerely,

(Signed)

LEONARD G. BELL.

INTERCOLONIAL RAILWAY—CONTRACT No. 9.

STATEMENT OF WORK REMAINING TO BE DONE, 31st DEC., 1872.

880	Class of Work.	Quantities by deduct- ing work done from revised quantities of August, 1872.		Quantity by special Measur- ment.
	Clearing, close cutting, grubbing.....	acres	50	50
	Fencing	lin. ft.	206,000	206,000
	Rock Cutting	cub yds.	6,775	5,011
	Clay do	"	57,170	27,568
	Under-drains	lin. ft.	6,500	8,400
890	Riprap	cub. yds	1,000	81
	Concrete	"	0	0
	1st class Masonry	"	5	11
	2nd "	"	5	80
	Paving.....	"	0	7
	Foundation Works.....	\$	50	50
	Bridge Superstructure	"	4,820	4,820
	Beam culvert superstructure.....	"	681	*
	Road Crossings and Diversions.....	"	2,971	†
	Special Works	"	7,850	†
900	* Beam Culvert Superstructure ..	lin. ft.		243
	† Road Crossings and Diversions :—			
	Cattle Guards.....	No.		20
	Sign Boards.....	"		25
	Farm Crossings.....	"		1
	‡ Tunnel at Armstrong's Block :—			
	Cleaning, Trimming and Widening ..	lin. ft.		186
	Sheeting	cub. yds.		460

INTERCOLONIAL RAILWAY—CONTRACT No. 15.

STATEMENT OF WORK REMAINING TO BE DONE 31st Dec., 1872.

910	Class of Work.	Quantities by deduct- ing work done from revised quantities of February, 1872.	Quantity by special measure- ment.
	Clearing, Close Cutting & Grubbing..... Acres	18	12
	Fencing..... lin. ft.	118,854	118,800
920	Rock Cutting..... cub. yds.	1,580	680
	Clay do	287,142	286,549
	Under-drains .. lin. ft.	12,615	12,606
	Riprap ... cub. yds.	648	110
	Concrete	411	6
	1st Class Masonry	427	580
	2nd " "	994	657
	Paving	110	83
	Foundation Works. \$	500	0
	Bridge Superstructure (Howe truss)	42,500	42,500
930	Beam Culverts..... "	60	*
	Overhead Bridges..... "	4,472	†
	Road Crossings and Diversions..... "	2,708	†
	* Beam Culvert Superstructure..... lin. ft. ....	.....	40
	† Overhead Bridges..... " .....	.....	560
	† Cattle Guards..... No. ....	.....	8
	Single Farm Crossings .....	.....	25
	Double " .....	.....	22
	Sign Boards..... " .....	.....	6

(651)

BATHURST, 6th January, 1873.

940 LEONARD G. BELL, Esq.,

Dalhousie :

MY DEAR SIR,—I this day mailed per parcel post the schedules and statements of the work remaining to be done on Contracts 9 and 15 on the 30th November, 1872, and trust they will be sufficiently explanatory for you to understand them.

On Contract 9, I have, from notes of my own, added a little more for out-falls than you allowed : the rest remains pretty much the same, except when they had worked at some of the drains, which you will see by the schedule.

I enclose another copy of the bill of works, as I omitted to enter five cubic yards of first and second-class masonry *each*, which I had retained to cover the pointing, &c., that 950 may be required hereafter to the work already executed. The bridge superstructure I left according to the bill furnished in February, 1872.

I have drawn your attention to the public roads ; they are twenty-five in number, and have entered six guards and sign boards, (*according to the original bill*) ; but there are five roads not yet opened out to the railway, and the question arises, are the guards, &c. required ? Certainly not immediately, or for some time yet.

They have only worked the past month at Armstrong's Brook, and placed 550 cubic yards earth in the embankments between Stations 11 and 12, which quantity, deducted from the total earth in the schedule, will give you the amount remaining on this Contract, 31st December, 1872.

960 On Contract 15 I have made some changes as follows :—From Station 45 to 48 the ditch on both sides has been laid out extra width for side borrow, all the material being required to make the embankments ; also 83 to 103 and 105 to 126, on the south, the ditch is laid out extra width, base varying from 8 to 19 feet, and the material is all going to bank between 103 and 107, so that the catch you allowed is done away with. At 136 the 10 cubic yards you note was taken out in November, and more too. Bank from 470 to 480, calculated at 2 to 1 slope, gives an increase of 5,220 cubic yards. The cut (488 to 495) was previously calculated at 30 feet. Bare & Gullet is nearly out. These, I believe, are all the changes.

I enclosed, with the other papers, a statement showing the work done, and when, on 970 this contract up to 31st December. It amounted in all to 9,591 cubic yards of earth, which, deducted from total earth on schedule, will enable you to bring your report down to the end of the year.

I remain,

Yours very truly,

(Signed)

CHAS. ODELL.

(652)

DALHOUSIE, 11th January, 1873.

DEAR ODELL :

Last night I sent away my report on 3, 6, 9 and 15 to Mr. Fleming, but while making it out I noticed a few matters that I do not know all about. I notice that nothing

980 has been paid for a long time for foundation works. In what state is the foundation of east abutment of the mill stream bridge in No. 15? Men were commencing to pump at it the other day when I was there with you, and I have supposed that the foundation is built.

The schedule of February, 1872, was not altered by me in September, and I notice that in the details it is calculated that 15,000 cubic yards should be spoiled west of the Tête-a-gauche and borrowed again in the east. Has this been calculated in your late quantities?

I expected when going over the quantities with Peterson, in August, that the gross quantities of masonry would have to be increased on account of Mr. John Ferguson's bridge, which had been left out in the schedule of February, 1872, but I find that even with the
990 bridge (containing 200 cubic yards) the gross quantity of February, 1872, has been diminished. How is this? Have any of the bridges taken less masonry than was allowed for them?

I ask these questions for my own information, that I may be able to answer such questions if put to me, and not because I do not think that all is right.

Yours very truly,

(Signed)

LEONARD G. BELL.

I send a copy of my report and statement for 9 and 15. Tell me if anything is wrong in them.

(653)

BATHURST, 13th January, 1873.

1000 DEAR MR. BELL,—Bertrand has applied to me for a statement of the work remaining to be done according to late measurements on both contracts, which I suppose there is no objection to his having.

Please let me know whether you have made any alterations, and if so, what they are.

Your letter of the 3rd duly received, and I have the matter in hand, and will send you the result shortly; but it will be in itself short. Peterson has taken his diary with him, but I think I can collect sufficient information without it.

Yours very truly,

(Signed)

CHAS. ODELL.

P. S.—No mails from the south here since Thursday last.

1010

C. O.

(654)

14th January, 1873.

To C. ODELL.

Bathurst:

Fleming has to approve the quantities and may insist on larger works; for instance drainage; so better not give any quantities, but line quantities yet a while.

(Signed)

L. G. BELL.

(655)

BATHURST, 17th January, 1873.

DEAR MR. BELL,—In reply to your letter of the 11th, I can give you the following explanation on Contract 15, as regards foundations, the \$2,500 was the total sum estimated 1020 for that item.

In November, 1871, Mr. Smith directed Peterson to return something under this head. He then returned \$2,500, thinking the whole amount was \$5,000, and I remember his speaking to me on the subject, after he found out his mistake, and it has remained thus ever since.

At that time (November, 1871) all the foundations requiring coffer-dams or much expense in pumping were put in. The mill stream east abutment remains as you saw it; they have some seven feet or so to go down to the rock.

The spoil west of the Tête-à-gauche, amounting to some 18,495 cubic yards, which has to be borrowed east has been calculated.

1030

The masonry stands thus :

	Cubic Yards
Peterson, last schedule has total 1st class	10,669
Bridge at 32+50 contains	47
	10,716
Ferguson, arch 325+20 abandoned.....	887
Making total 1st class.....	9,829

1040

	Cubic Yards
Peterson, last schedule has total 2nd class... ..	2,760
325+20 box culvert, Ferguson's	70
329+50 beam bridge, "	200
Making total 2nd class.....	3,030

I trust these explanations will make the matter clear to you.

I telegraphed you yesterday, that I found you had omitted to deduct, from the earth quantities on both contracts, the amount returned as done in the month of December on each; in order to bring your statement down to the 31st December, which is the date mentioned in your report.

It would not matter much on No. 9, but there is a big lump (some 9,000 cubic yards) done on 15.

Yours very truly,

(Signed)

CHAS. ODELL.

INTERCOLONIAL RAILWAY,
OFFICE OF THE CHIEF ENGINEER,
OTTAWA, 22nd January, 1878.

(656)

L. G. BELL, Esq.,

Dalhousie, N. B.:

My DEAR SIR,—In your letter of the 9th December, you enclose approximate estimates for Sections 17 and 18 of revised quantities, with prices attached, making out the contract sums. On these, I believe you are basing your monthly telegraph returns. As there has been so much measurement and re-measurement, I wish you would send up similar bills of revised quantities for the other sections on your District which you propose using in the future as the basis upon which to make the monthly telegraph returns.

It is important that we should have in this office an exact duplicate of the bills of quantities, with rates, &c., that you use, so that we can check the telegraphic returns as they come in. You will bear in mind that these sheets are simply for the purpose of enabling you to make the telegraph returns in a way which they can be understood in this office, in accordance with my letter of March 18th, 1872, addressed to Mr. Marcus Smith, a copy of which you have. You will readily see that, by this mode, the quantities of work executed, moneyed out by you and by me at corresponding prices, should give one total sum designated in the telegraph return by the letter R, and in this way an error is easily discovered. The rates used do not signify so much, the object being to get from you the exact quantities of work done, which quantities are moneyed out here for the purpose of paying the contractors at other rates which the Government have authorized me to use.

Yours very truly,

(Signed)

SANDFORD FLEMING.

(657)

BATHURST, 22nd January, 1878.

DEAR MR. BELL,—I have got through with the diary extracts and force returns on both Contracts 9 and 15 for the year 1872.

The contractor gave me a statement for Contract 9, of the average daily force at grading, &c., for the month and for the quarries; the total monthly. I have reduced them to the average weekly force for each month, and this is the nearest I can come to it, and believe it is pretty correct.

On Contract 15 I was enabled to have a better check, as they had kept the force pretty well in the office during the year.

I send you Mann's and Fotheringham's diary extracts for 15; giving my own during my reign. Peterson has carried off his diary, so that I cannot give you notes from it; but probably enough may be gleaned from the others to answer the purpose.

I also send extracts and force up to date, 18th January, 1878, on No. 9. They have closed work for the season, with the exception of getting out some rails for fencing.

Yours very truly,

1090

(Signed)

CHAS. ODELL.

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

(658)

OTTAWA, 29th January, 1873.

L. G. BELL, Esq., Dalhousie:

MY DEAR SIR,—With respect to the subject of your letter to me dated 21st December, I think a 6-inch iron pipe, laid in concrete under the embankment, would answer every purpose, provided you place a masonry cess pit at the upper and lower ends to catch sediment, thus:—

Sketch.

- 1100 They should be made low enough to be beyond the reach of the frost; the pipe should be perfectly straight, and with a uniform descent. The pit should also have good covers, that could be moved when it becomes necessary to clean or examine. The pits should be 6 or 10 feet away from the toe of embankment, and covers say 2 feet 6 inches or 3 feet under the ground.

Yours truly,

(Signed)

S. FLEMING.

(659)

DALHOUSIE, 29th January, 1873.

DEAR ODELL,—Mr. Fleming wishes to have the usual record drawings of work done during the past year. Will you get those for 9 and 15 prepared as soon as possible. I suppose like the others, you are to some extent prepared, and I suppose there is no *pressing* hurry for

- 1110 the drawings, but you may as well get them off your hands.

The force returns, &c., came all right. Those for No. 15 (I suppose) both for 1872 and 1873, have not the number of the contract. Please tell Mann, or whoever makes out the returns, to write the number of the contract in future.

Yours very truly,

(Signed)

LEONARD G. BELL.

(660)

DALHOUSIE, 1st February, 1873.

SANDFORD FLEMING, Esq.:

- 1120 MY DEAR SIR,—Enclosed I send you the schedule of prices that have been used since September last for making up the telegraph returns for Contracts 8, 6 and 9. The schedules made in February of last year, for Contracts 15 and 19, are those still in use. I believe copies of these schedules, for 8, 6 and 9, were sent by my orders to your office in September last, but I cannot find the record. I send these now on account of your letter of 22nd inst. asking for them.

I remain, Dear Sir, yours very sincerely,

(Signed)

LEONARD G. BELL.

(661)

DALHOUSIE, 8rd February, 1878.

SANDFORD FLEMING, Esq. :

1130 DEAR SIR,—I have been asked for the plan of signboards for public road crossings, and I shall give that which has been used on the western sections. But I write this because when the Commissioners were here in September last, Mr. Brydges, in the presence, and I believe at the instance, of the contractors and others interested in the Contracts 8, 6, 9 and 15, gave me instructions to use signboards of this kind.

(Sketch)

instead of this kind.

(Sketch)

I remain, Dear Sir, yours very sincerely,

LEONARD G. BELL.

(662)

OTTAWA, February 8rd, 1878.

To the Honorable Commissioners of the

1140 Intercolonial Railway :

GENTLEMEN,—We have the honor to send you herewith statements showing the cost of the works up to the 1st of December last on Sections 8, 6, 9 and 15 of the Intercolonial Railway, and are prepared to explain fully the causes and circumstances which have forced us to make this excess of expenditure over and above the estimates received, amounting on

No	8	to	.....	\$174,535 71
"	6	to	.....	201,980 64
"	9	to	.....	218,704 47
"	15	to	.....	154,717 58

1150 And we respectfully request your earnest consideration of our case, and pray that you will recommend, immediately, a payment to us, on account, of at least one hundred and twenty-five thousand dollars on each section, which we are in urgent need of, to repay part of the monies advanced to us, the interest and commission on which are pressing heavily on us ; leaving the final settlement until the sections are completed.

Our work throughout, we confidently assert, is well and substantially done, and on a great public work like the Intercolonial Railway, built, on our sections, under great local and other difficulties well known to yourselves and capable of clear proof, we entertain the strongest hope that neither your Honorable Commissioners, the Government, or the country at large, will allow any part of the cost of such a great national work to be sustained by private individuals, who, from the combination of circumstances and causes beyond their 1160 control, are in the position we find ourselves.

We have the honor to be,

Your most obedient servants,

F. X. BERLINGUET & CO.,

Contractors for Sections 8 and 6.

J. B. BERTRAND & CO.,

Contractors for Sections 9 and 15.

SECTION No. 9.

ABSTRACT OF MONTHLY EXPENDITURE.

[illegible][illegible]

SECTION No. 15.

ABSTRACT OF MONTHLY EXPENDITURE.

Amounts received on account. Balance due. Remarks referring to details.

Months.	Amounts Expended.	Amounts Received.	Deficiency.	Interest Dei- cency.	Balance due.	Re- marks.
1870. July.....	\$ 8,409 43	\$ 1,211 00	\$ 2,198 48	\$ 637 42	\$ 2,885 85	
August	6,492 52	8,272 00	3,220 52	901 60	4,122 12	
September..	8,556 72	5,400 00	8,156 72	852 12	4,008 84	
1220 October.....	12,498 86	8,118 00	6,880 86	1,188 80	5,519 66	
November...	12,112 70	4,499 00	7,613 70	1,908 25	9,516 95	
December...	13,889 47	7,200 00	6,689 47	1,605 86	8,294 83	
1871. January ...	13,674 90	1,800 00	11,874 90	2,731 02	14,605 92	
February...	18,155 17	4,500 00	13,655 17	3,004 10	16,659 27	
March	17,226 23	7,200 00	10,026 23	2,105 46	12,131 69	
April	12,990 64	4,500 00	8,490 64	1,698 00	10,188 64	
May	14,794 45	16,300 00				
June	18,175 49	7,200 00	9,469 94	1,703 42	11,173 36	
1230 July.....	80,866 82	19,800 00	11,066 82	1,881 22	12,968 04	
August	24,417 01	9,900 00	14,517 01	2,322 72	16,889 73	
September..	21,298 00	43,900 00				
October....	21,433 94	18,900 00				
November...	27,407 70	12,600 00				
December...	11,733 86		6,478 59	764 76	7,238 35	
1872. January	13,390 61	15,340 00				
February...	11,397 21	6,860 00	3,087 82	308 70	3,396 52	
March	17,253 85	20,000 00				
April	12,185 03	6,000 00	3,437 88	275 04	3,713 92	
1240 May.....	12,078 93	7,000 00	5,078 93	355 46	5,434 39	
June	15,744 81	10,000 00	5,744 81	344 66	6,089 45	
July	28,097 06	28,500 00				
August	18,708 80	24,500 00				
September..	24,370 21	21,000 00				
October....	20,657 28	18,000 00				
November...	13,883 91	15,000 00				
	\$467,901 70	\$318,000 00		\$24,533 09		
1873. December...		3,000 00				
January....		3,000 00				
1250 February....		5,000 00				
March		2,000 00				
April						
May.....	12,579 81					
June	10,130 38	10,130 38		17,847 48		
	\$499,611 89	\$372,130 38	\$127,681 51	\$42,880 57	\$169,862 08	

Expenses at Quebec..... 12,079 05

\$172,741 13

(668)

DALHOUSIE, February 8rd, 1878.

Messrs. J. B. BERTRAND & Co.,

Bathurst :

1260 GENTLEMEN,—As I understand you are getting out a large quantity of fence timber this winter, I think it necessary to caution you against getting out any of inferior quality or size, as I shall not accept such on the work.

Yours very truly,

(Signed)

LEONARD G. BELL.

(664)

BATHURST, February 4th, 1878.

DEAR MR. BELL,—Herewith I enclose the January certificates for Contracts 9 and 15 ; on the former they are doing nothing at present, except getting out a few fence rails.

I have started the record drawings mentioned in your letter of the 29th, but will soon come to a *standstill*, unless I receive the tracing cloth, for which I gave Harris an
1270 *unlimited* order when he was down here.

Everything very quiet and dull here; fortunately, we have an occasional *snowstorm* to change the monotony and enliven the scene.

Yours very truly,

(Signed)

CHARLES ODELL.

(665)

OTTAWA, February 5th, 1878.

GENTLEMEN,—The Commissioners have received from you a series of statements relating to the expenditure on Sections 3, 6, 9 and 15.

As under the contracts you entered into with the Commissioners, they have no control over your expenditure, they beg to return the accompanying papers.

1280

I remain, gentlemen,

Your obedient servant,

(Signed)

RALPH JONES,

Secretary.

Messrs. F. X. BERLINGUET & Co. }
" J. B. BERTRAND & Co. }
Ottawa.

P.S.—As you requested Mr. DuPlessis, I will hold the papers till you return.

(Signed)

R. J.

(666)

DALHOUSIE, 7th Feb, 1878.

1290 DEAR ODELL,—Please give me a rough statement of how the men are distributed in the three cuttings on No. 15, west of Tête-à-gauche and west of Nipissiguit, and in each

week give such a statement as that for Feb. 1st, telling where work is going on and the distribution of the men. I make a short abstract of such statement for my own use to answer when called on.

Yours very truly,

(Signed)

LEONARD. G. BELL.

(667)

DALHOUSIE, 10th Feb, 1878.

DEAR ODELL,—I have received a letter from Mr. Fleming, dated 29th Jan., deciding on a 6 in. iron pipe, laid in concrete, under the bank, with a cesspool at each end, for water to Hon. J. Ferguson's mill, &c. The cesspools are to be 6 or 10 feet away from the toe of the slope of the embankment, to be below frost, and to have covers that may be removed to allow of cleaning. I shall make a sketch in a few days; meanwhile you may tell Bertrand, so that he may make ready.

Yours very sincerely,

(Signed)

LEONARD. G. BELL.

(668)

BATHURST, 12th February, 1878.

DEAR MR. BELL,—Enclosed are the diary extracts and force returns for the week ending 8th February.

I have had the force at each cut given separately, so that you may know how the 1310 men are disposed of.

I would like to have what tracing cloth you can spare of either 19 or 16 inches in width; the former is just half the width of the roll.

The profile paper to hold 250 feet vertical at least; would prefer 800.

I am off to-night if mails get in; good-bye.

Yours truly,

(Signed)

CHAS. ODELL.

(669)

OTTAWA, 11th March, 1878.

L. G. BELL, Esq.,

Dalhousie:

1320 DEAR SIR,—I herewith enclose a sketch of signboards and posts similar to that which has been adopted in Nova Scotia. It is much simpler than the other plan, will answer the purpose equally well, and you will be good enough to use it on your district.

Yours truly,

(Signed)

SANDFORD FLEMING.

(670)

OTTAWA, 10th April, 1878.

RALPH JONES, Esq.,

Secretary I. C. Ry.:

DEAR SIR,—Mr. Burpé will hand you a memorandum of certificate amounts this morning, made up from the quantities returned and the Order-in-Council prices authorized 1330 to be used.

I think you should draw the attention of the Commissioners to the fact that these prices are in several cases so high that the contract sums will be reached very soon, although there will still remain a considerable proportion of the contract work to be performed.

I have given the contract sums in pencil opposite the certificate amounts for ready reference.

Yours truly,

(Signed)

SANDFORD FLEMING.
Chief Engineer.

1340 (671)

OTTAWA, April 16th 1878.

RALPH JONES, Esq.,

Secretary:

DEAR SIR:—Referring to your letter of the 12th inst., I now submit the following statements made up from the best information in my possession:

Statement No. 1 gives the value of work still to be done on several of the contracts, moneyed out at the *Order-in-Council rates*, now employed in making up my certificates.

Statement No. 2 gives the balance of the contract sums unpaid to the contractor. These amounts are made up by adding the advances given in the Commissioners' Printed Report, dated March 8th, to the total amounts last certified.

1350 From these two statements, placed in parallel columns, the Commissioners will see that the amounts paid in several cases are very nearly up to the contract sums, while a considerable proportion of work still remains to be done.

		(Statement No. 1)	(Statement No. 2)
		Value of work still to be done at present O.C. rates.	Balance of contract sums unpaid.
Contract.			
Contracts	8	114,602	10,444
"	"	174,922	77,946
"	9	53,644	10,897
1360	" 15	136,416	1,520

Yours very truly,

(Signed)

SANDFORD FLEMING.

(672)

DALHOUSIE, 25th April, 1878.

DEAR ODELL,—Lately in a case on Contract No. 18, I found it very important to have had the force returns made out as Grant makes them out on No's. 18 and 19. I would like you to get your returns made out in the same form, a copy of which I send you. I will get a supply of forms ruled immediately by Dawson and send you some. It will probably not be in your power to have the different gangs counted daily, but fill the return up from the best information you can get, and mark with a stroke under the figures the numbers actually counted on any particular day, as I have sketched on the form. This would be evidence of correctness of the average.

Yours very truly,

(Signed) LEONARD. G. BELL.

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

OTTAWA, May 2nd, 1878.

(673)

L. G. BELL, Esq.,

Dalhousie :

1380 MY DEAR SIR,—I enclose herewith a letter from Jas. R. White to Mr. Anglin, in reference to a road-crossing upon his property, at or near Bathurst. See that Mr. White is provided with such a crossing as the circumstances of the case will justify and require.

Yours truly,

(Signed) SANDFORD FLEMING.

(674)

(By Telegraph from Ottawa.)

May 7th, 1878.

To L. G. BELL :

Touching Mr. Ferguson's farm crossing Section fifteen, see that it is made fairly passable, and approaches as good as they were formerly.

(Signed)

S. FLEMING.

1390

(675)

DALHOUSIE, 10th May, 1878

DEAR ODELL,—Please read the enclosed letter and let me know what you have to say on the subject. What state has the crossing been in as regards snow? Where was the old road? What objection is there against giving a single crossing at 418 and another at 423 instead of the double one proposed at 420+57? What has been done in making the road. The farm is No. 291 on Section 15. Send back White's letter with your remarks.

Yours very truly,

(Signed)

LEONARD G. BELL.

(676)

BATHURST, 14th May, 1878

DEAR MR. BELL,—Yours of the 10th received with a letter of Jas. R. White respecting
1400 his farm crossing, enclosed.

In reply thereto, I have to state that the old road was at 422+80, about the deepest point of the cutting—being some 12. 1 feet.

My reason for changing the road to 420+57 was that it was on the line between Jas. and Ed. White, and a double crossing would answer both. Jas. White strongly objected to my putting it at 428 on account of its going through his orchard and garden, and Edwd. White objected to having his at 418, preferring to have it on the line between them, and rather than not have it there, offered to give the whole of the ground for it, instead of dividing it as I have done.

I visited the ground early in April in company with Mr. Jas. White and found the
1410 crossing, as also the whole railway cut, blocked up with snow, and he had been using a road leading through his orchard, crossing near 423, which at this season could do no damage to the orchard.

I went again yesterday and called to see Edwd. White; he says he is perfectly satisfied with it; that he used it during the early part of the winter, and has no doubt, had he required it, could have easily kept it open.

I find a gross error in Jas. White's statement as regards the depth of the cut at 450+57, —instead of 18 feet 6 inches it is only about 9 feet 6 inches, and at the point where the two slopes meet it is some 5 feet 9 inches.

I consider he is no worse off than Mrs. Waterson's crossing at 403, depth about
1420 6 feet 6 inches at junction of slopes, and many other similar along the line.

Should the Commissioners grant his request by giving him an overhead bridge, it will lead to no end of trouble, as others will put in similar claims with equal right to the same.

Yours very truly,

(Signed)

CHAS. ODELL.

(677)

DALHOUSIE, 14th May, 1878.

DEAR ODELL :

Mr. Fleming telegraphed a few days ago : " Touching Mr. Ferguson's farm crossing, " Section 15, see that it is made fairly passable, and approaches as good as they were " formerly." What is being done at it ? Has anything been done in preparing for the iron
1430 pipe to carry the water for his farm yard and mill across the railway ?

Yours very truly,

(Signed)

LEONARD G. BELL.

Please send something to put into your column in the progress report, not necessarily the petty minutiae of your own daily walk and conversation, but a short report of what is going on on the line.

(Signed)

L. G. BELL.

(678)

DALHOUSIE, 16th May, 1873.

SANDFORD FLEMING, Esq. :

DEAR SIR,—I communicated with Mr. Odell on the subject of the complaint of James
 1440 R. White, made to Mr. Anglin, and referred to in your letter of 2nd May. The new road and
 crossing for James White are placed at Station 420+57 on the line between his farm and that of
 Edward White, so that one crossing of the railway would serve both farms. James White
 strongly objected to the crossing being made at 423 near grade level, because then his road
 would run through his garden ; and Edward White as strongly objected to his crossing
 being made near grade level at 418, and required it to be at the fence at 420+57. James
 White wants his crossing on the line of his old road at 422, because he thinks he could then
 better force his getting a bridge ; but the cutting there is only 12'-10" deep to formation
 level, and I do not think the place is worth such a bridge as that would necessitate.
 Besides, the ground falls towards the north towards the public road, so that although the
 1450 depth of cutting on the centre line of the railway at the point where the crossing is
 made is about 9' 6", the level of the point where the slope of the approach to the
 crossing runs out on the surface of the ground is only 5'-9" above formation level.

Mr. Odell visited the place early in last April, and found the whole railway cutting
 blocked up with snow, and James White was then using a road through his orchard, which at
 that season could receive no injury from the road. Again Mr. Odell visited the place after
 getting my letter on the subject, and he called on Edward White. Edward White expressed
 himself as perfectly satisfied with the crossing ; said he had used it during the early part of
 the winter, and that he had no doubt he could have kept it open all winter if he had wanted
 to do so. I consider there is no hardship whatever in James White's case.

1460

I remain, dear Sir,

Yours very sincerely,

(Signed)

LEONARD G. BELL.

I return James White's letter.

(679)

OTTAWA, 28th May, 1873.

To the COMMISSIONERS Intercolonial Railway :

GENTLEMEN,—Understanding from you that we are not likely to have any sums of
 money paid to us immediately in account of the large claims submitted to you for extras on
 Sections 3, 6, 9 and 15, we beg to inform you in consequence, and without prejudice to
 those claims, that we are unable to continue the progress of the works, as you have notified
 1470 us that you require.

We are, Gentlemen,

Your obedient servants,

(Signed)

F. X. BERLINGUET & Co.,
 for Sections 3 and 6 ;
 J. B. BERTRAND & Co.,
 for Sections 9 and 15.

INTERCOLONIAL RAILWAY, COMMISSIONERS OFFICE.

(680)

OTTAWA, 29th May, 1878.

Sandford Fleming, Esq.,

1480 Chief Engineer, Ottawa :

DEAR SIR,—I am directed to hand you herewith copies of statement of claims submitted by the contractors for Sections 8, 6, 9 and 15, for work claimed as extra.

The Commissioners request that you will take the earliest and best means at your disposal for obtaining the information to enable you to report the facts *seriatim*, in reference to each item in these statements, without reference to the question as to whether any of the works so claimed to have been executed should be considered as extra.

I have the honor to be, dear Sir,

Yours most respectfully,

(Signed,)

RALPH JONES,

Secretary.

(per T. C. Du P.

1490

(681)

OTTAWA, 24th May, 1878.

To the Honorable Messrs. the Commissioners
of the Intercolonial Railroad :

GENTLEMEN,—In February last, we had the honor to submit to you statements of our actual expenditure on Sections No. 8, 6, 9, and 15, of the Intercolonial Railway.

You will have thus seen, at that time, the difference between the amounts received and the payments made by us in the execution of the works as sworn to by the documents accompanying.

1500 The excess of our outlay being so large, caused by exceptional circumstances and local difficulties, placed it, we conceived, beyond the ordinary acceptance of extras, and was the reason of our presenting those sworn documents to you so as to prove and show clearly the actual facts of our position.

The reply received from you saying that you could not take the documents into your consideration on account of the terms of the contract, obliges us *now* to submit to you, by the accounts sent herewith, detailed items of the extras, which we confidently trust you will accept as such, and we beg earnestly that you will take favorable consideration of them, and immediate action in the matter, as without payment being made to us of about the amount these claims represent, we have no alternative but to stop all works on the sections, and

1510 suspend them until a satisfactory arrangement be arrived at. Our securities have already made sacrifices and incurred liabilities beyond any precedent in their desire to aid us in having the works contracted for faithfully carried out. Nothing further can be done by them or us without action on your part to afford us the substantial relief sought for.

Bill of Extras, Section 3.....	\$175,813
do do 6.....	106,941
do do 9.....	106,800
do do 15.....	15,500

The total amount of these amounts only representing 72 per cent. of what we have actually paid on the works in excess of the payments received.

1520

We have the honor to be, your most humble servants,

(Signed,) F. X. BERLINGUET & Co.,
Contractors for Sections 9 and 6.
" J. B. BERTRAND & Co.,
Contractors for Sections 9 and 15.

Messrs. the Commissioners of the I. C. R. Ry.,

Dr. to J. B. Bertrand & Co.

Section No. 9.

1. Damages on account of lands not being paid for.....	\$9,400
2. Damages from there being no Engineer in the section.....	10,000
3. Grubbing and close cutting.....	2,200
4. Cement.....	5,000
5. Stone condemned.....	42,700
6. Granite masonry.....	15,000
7. Opening of Bass River Quarry.....	7,000
8. Rock excavation.....	15,000
	\$106,800

Section No. 9.

1. Damages on account of the lands not being paid for.	
We had to take possession of the lands by force, in order to	
begin clearing.....	\$8,000
Loss of 8,000 fence rails at 8c.....	6,400
	\$9,400

50 men were employed during 60 days to take possession of these lands, and it led to endless disputes; the proprietors, not being paid, took possession of the rails and all the valuable timber that had been saved from the clearing. We could not wait to begin, as the law forbids to burn except at a certain time of year.

Section No. 9.

2. Damages from not having an Engineer.

1550 At the beginning of our contract, and being fully prepared to commence work, we were 7 months without an Engineer in the section; and, knowing the power vested in the Engineers, we were greatly impeded, and unable to go on with the work, suffering a loss therefrom of more than..... \$10,000

Section No. 9.

3. Grubbing and close cutting.

30 acres grubbing at \$60.....	\$1,800
20 " close cutting at \$20.....	400
	\$2,200

These quantities were over and above those given in the Bill of Works.

Section No. 9.

4. Cement.

Damage for good cement condemned cost, freight and damage \$5,000

This includes not only the value of the cement, but the loss of time and damages for stopping the works.

Section No. 9.

5. Stone condemned.

1570 Time lost before the order was finally given to use the stone that had been condemned.....	\$15,000
Expenditure incurred by being prevented to continue the quarrying of that stone.....	6,000
Steamboat stopped in consequence, 130 days at \$40.....	5,200
Six scows stopped.....	1,500
Expense incurred in opening 20 (?) quarries at Grand Anse, in a space of eight miles, including 1,800 yards stone left at Grand Anse.....	15,000
	\$42,700

1580 At the time the stone was condemned, we had 120 skilled mechanics at work, all strangers to the place. It was impossible to discharge them, unless we abandoned building any masonry that year. Our operations at Grand Anse were conducted with the sanction of the District Engineer. The Inspector of masonry frequently visited the quarries; saw the dressing of the stone proceeded with, and then when it was ready to build, objection was made, our work stopped, and all our expenditure and organization was in consequence a dead loss to us.

Over 50 men and 80 horses were employed at the quarries at Grand Anse when they were stopped.

Section No. 9.

6. Granite Masonry.

1,000 cubic yards granite masonry at \$15..... \$15,000

1590 This quantity of granite is all dressed and mostly special stones used at the request of the Engineers, with the understanding that the difference in its cost would be paid to us.

Section No. 9.

7. Opening of Bass River Quarry.

Expenditure incurred in opening the quarry, making roads and erecting the necessary buildings. The stone was condemned by Mr. Smith, but on Mr. Schreiber's inspection of it, was found good, and we were then allowed to use it, winter of 1871..... \$7,000

Section No. 9.

8. Rock Excavation.

1600 1,000 yards rock at \$1.50..... \$15,000

Between stations 520 and 596, it was stated as gravel in the profile, whereas it was the hardest rock on the section.

MESSRS. THE COMMISSIONERS OF THE I. C. RAILROAD.

Dr. to J. B. BERTRAND & Co.

Section No. 15.

1610	1 Granite Masonry	\$192,000
	2 Grubbing	600
	3 Backing	18,000
	4 Levelling Foundations	8,000
	5 Special Stones	900
		\$154,500

Section No. 15.

1. Granite Masonry.

Increased value on 12,000 cubic yds. Granite Masonry at \$11.. \$182,000

We had an excellent sandstone quarry, coming out in large blocks, that we could work cheaply, on the Nipissiguit River, in the neighborhood of the granite quarry, but the Engineers refused to allow us to use it because granite was available, which they insisted on our using, saying that its intrinsic value was so manifest, that the difference in its cost 1620 would be paid to us.

Section No. 15.

2. Grubbing.

10 acres of Grubbing at \$60..... \$600

This quantity of grubbing is over what is allowed in the Bill of Works.

Section No 15.

8. Backing.

3,000 cubic yards Backing, executed at the request of the Engineers, as first-class masonry, at \$6..... \$18,000

1630 This backing is cut, dressed and set as face-stone, Nipissiguit and Tête-à-gauche Bridges.

Section No. 15.

4. Levelling of Foundations.

Extra work for chisel-draft levelling of foundations in solid rock..... \$8,000

Instead of levelling the bottom with masonry at the Nipissiguit Bridge, the solid rock was cut until perfectly level throughout, and dressed perfectly smooth, by order of the Engineer.

Section No. 15.

5. Special Stones.

1640 18 pieces of bridge seats on the piers of Nipissiguit and Tête-à-gauche Bridges, in one piece: Difference, \$50 on each .. \$900

We were not obliged to use stones of such large dimensions, and it was only at the request of the Engineers that we went to the expense of handling them, with the understanding that we should be paid for the difference.

[682.]

Copy of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 30th May, 1873.

On a report dated 29th May, 1873, from the Commissioners appointed to construct the Intercolonial Railway, stating, in reference to the work upon Sections Nos. 3, 6, 9 and 15 of the Intercolonial Railway, that the contracts of these sections, filed with the Commissioners on the 14th inst., statements of works executed, claimed to be extra, amounting in the aggregate to \$543,554;

That these statements were submitted to the Chief Engineer for examination, but that he had not the information in his possession to enable him to make an immediate or early report thereon;

That the contractors upon being informed that payments could not be made upon these claims until the same should have been reported on and approved, informed the Commissioners that in the absence of such payments they could not proceed with the works with as much vigour as the Commissioners require;

The Commissioners therefore recommend that they be authorized to take these respective sections out of the contractor's hands, and as the advertising and re-letting of the work remaining to execute would involve the loss of the greater part of the present working season, the Commissioners also recommend that they be authorized
20 (in terms of the contracts) to "employ such means as they may see fit to complete the "works at the expense of the contractors."

On the recommendation of the Honorable the Minister of Public Works, the Committee advise that the authority requested be granted.

Certified.

(Signed.)

W. A. HILSWORTH.

Clerk, Privy Council.

[683.]

Copy of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 30th May, 1873.

30 On a memorandum dated 29th May, 1873, from the Commissioners appointed to construct the Intercolonial Railway, reporting that the contracts entered into for the construction of the Intercolonial Railway, contain a clause in these words: "If, at any time, it shall appear to the Commissioners that the security of the works was endangered, or the peace of the neighborhood is likely to be disturbed, or any other difficulty likely to arise by reason of the men being left unpaid, the Commissioners may pay any arrears of wages so far as they can ascertain the same to be due, on the best information they can obtain, and charge the same as a payment on account of this contract." And the Commissioners having recommended to Council to authorize them to enter upon Sections Nos. 3, 6, 9 and

15, and complete them, they further recommend that, should the contingencies named in
40 said clause arise from unpaid wages at the time of assuming control of the work, they be
authorized to pay such arrears, charging the same to the contractors.

On the recommendation of the Honorable the Minister of Public Works, the Com-
mittee advise that the authority asked for by the Commissioners be granted.

Certified.

(Signed,)

W. A. HIMSWORTH,

Clerk, Privy Council.

To the Commissioners of the
Intercolonial Railway.

[684.]

To Jean Baptiste Bertrand, of the City of Quebec, in the Province of Quebec, in the Do-
minion of Canada, Contractor, and François-Xavier Bertrand, of the said City of
50 Quebec, Contractor, carrying on business as co-partners, under the name and style
and firm of J. B. Bertrand and Company, contractors for the construction of Section
number nine (No. 9) of the Intercolonial Railway;

Whereas, you did, by instrument bearing date on or about the twenty-sixth day of
October, in the year 1869, contract to and with Her Majesty the Queen, represented by us
hereinafter named, for the construction of that portion of the Intercolonial Railway known
as Section No. 9, and more particularly described as follows, to wit:—

That portion of the said railway being in the Province of New Brunswick, extending
from the easterly end of Section No. 6, to the westerly end of Section number fifteen (15)
60 of the said Railway, the said Section No. 9 of the said Intercolonial Railway being in
length twenty-one miles, more or less;

And whereas the force employed, the rate of progress being made, the general char-
acter of the work being performed, and the materials supplied and being furnished, are not
such as to insure the completion of the works within the time stipulated, and are not in
accordance with your contract;

Now we, Aquila Walsh, Esquire, the Honourable Edward Barron Chandler, Charles
John Brydges, Esquire, and the Honourable Archibald Woodbury McLelan, Commissioners,
appointed under and by virtue of the Act of the Parliament of Canada, passed in the Ses-
sion held in the 31st year of Her Majesty's reign, intituled; "An Act respecting the con-
70 struction of the Intercolonial Railway," do hereby give you and each of you notice in
writing, of our intention to take the whole of the works of the said Section No. 9 out of
your hands, and to employ such means as we may see fit to complete such works at your
expense, and that you will be held liable for all extra expenditure incurred thereby.

Dated at the City of Ottawa, in the Province of Ontario, this thirtieth day of May, in
the year of Our Lord, 1873, and signed by me, Aquila Walsh, Esquire, Chairman of the
Board of Commissioners.

(Signed,)

A. WALSH,

Chairman.

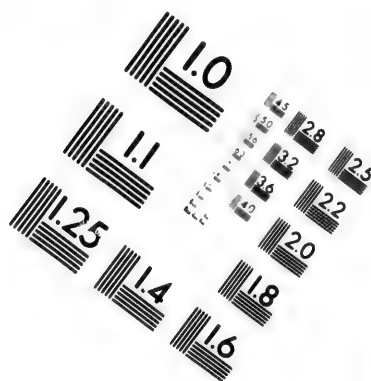
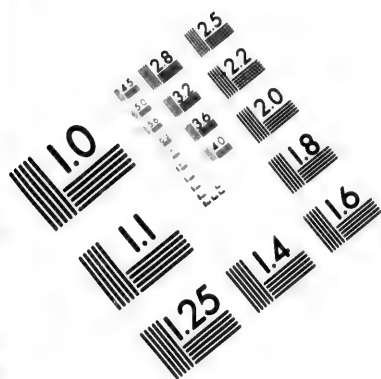
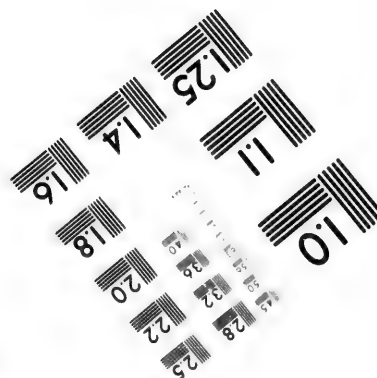
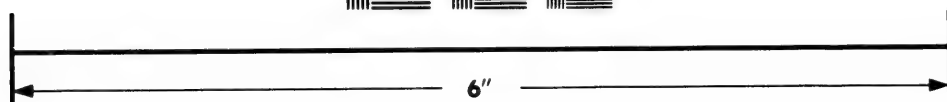
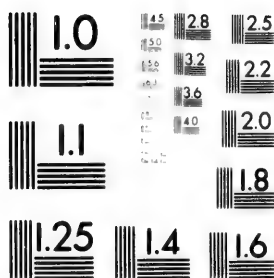


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10

[685.]

To Thomas Glover, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Merchant, and John Sharland Fry, of the said City of Quebec, Merchant;

Whereas, by bond or obligation, bearing date on or about the twenty-sixth day of October, in the year 1869, you, together with Jean Baptiste Bertrand and François-Xavier Bertrand, therein described as of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Contractors, became held and firmly bound to Her Majesty the Queen in the sum of \$709,794, of lawful money of Canada, condition for the due performance by the said Jean Baptiste Bertrand and François-Xavier Bertrand of a certain contract in writing, bearing even date therewith, whereby they covenanted and agreed with Her Majesty for the construction and completion of that portion of the Intercolonial Railway known as Section No. 9, as more fully described in the said contract;

And whereas, the time named for the fulfilment of said contract having expired, and the force employed, and the arrangements made by them for finishing the works, are not considered by us sufficient and satisfactory;

Now we, Aquila Walsh, Esquire, the Honourable Edward Barron Chandler, Charles John Brydges, Esquire, and the Honourable Archibald Woodbury McLelan, Commissioners, appointed under and by virtue of the Act of the Parliament of Canada, passed in the Session held in the 31st year of Her Majesty's reign, intituled "An Act respecting the construction of the Intercolonial Railway," do hereby give you and each and every of you, notice, that we have by writing bearing even date herewith, and signed by the Chairman of the Board of Commissioners, given to the said Jean Baptiste Bertrand and François-Xavier Bertrand, seven clear days' notice of our intention to take the whole of the works of the said Section No. 9 out of their hands, and to employ such means as we may see fit to complete such works at their expense, and that you will be liable for all extra expenditure incurred thereby.

Dated at the City of Ottawa, in the Province of Ontario, this thirtieth day of May, in the year 1873, and signed by me, Aquila Walsh, Esquire, Chairman of the Board of Commissioners.

(Signed,) A. WALSH,
Chairman.

110 [686.]

To Jean Baptiste Bertrand, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Contractors; François-Xavier Bertrand, of the said City of Quebec, Contractor, carrying on business as co-partners, under the names, style and firm of J. B. Bertrand and Company, Contractors for the construction of Section No. 15 (number fifteen) of the Intercolonial Railway;

Whereas you did, by instrument bearing date on or about the fifteenth day of June, in the year 1870, contract to and with Her Majesty the Queen, represented by us hereinafter named, for the construction of that portion of the Intercolonial Railway known as Section

No. 15, and more particularly described as follows, to wit: That portion of the said railway being in the Province of New Brunswick, extending from the easterly end of Section number nine (No. 9.) to the westerly end of Section number sixteen (16,) of the said railway, the said Section number fifteen of the said Intercolonial Railway, being in length twelve miles or thereabouts, more or less;

And whereas the force employed, the rate of progress being made, the general character of the work being performed, and the materials supplied and being furnished, are not such as to insure the completion of the works within the time stipulated and are not in accordance with your contract.

Now we, Aquila Walsh Esquire, the Hon. Edward Barron Chandler, Charles John Brydges Esq., and the Hon. Archibald Woodbury McLelan, Commissioners appointed under and by virtue of the Act of the Parliament of Canada, passed in the Session held in the 31st year of Her Majesty's reign, intituled "An Act respecting the construction of the Intercolonial Railway," do hereby give you and each of you notice in writing of our intention to take the whole of the works of the said Section No. 15, out of your hands, and to employ such means as we may see fit to complete such works at your expense, and that you will be held liable for all extra expenditure incurred thereby.

Dated at the City of Ottawa, in the Province of Ontario, this thirtieth day of May, in the year of Our Lord 1873, and signed by me, Aquila Walsh Esq., Chairman of the Board of Commissioners.

(Signed,)

A. WALSH.
Chairman.

140

[687.]

To Thomas Glover, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Merchant; and John Sharland Fry, of the said City of Quebec, Merchant.

Whereas by bond or obligation, bearing date on or about the fifteenth day of June, in the year 1870, you, together with Jean Baptiste Bertrand, and Francois-Xavier Bertrand, therein described as of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, contractors, became held and firmly bound to Her Majesty the Queen, in the sum of \$727,040 of lawful money of Canada, condition for the due performance by the said Jean Baptiste Bertrand, and Francois-Xavier Bertrand of a certain contract in writing, bearing even date therewith, whereby they covenanted and agreed with Her Majesty for the construction and completion of that portion of the Intercolonial Railway, known as Section No. 15, as were fully described in the said contract;

And whereas the time named for the fulfilment of said contract having expired, and the force employed, and the arrangements made by them for finishing the works are not considered by us sufficient and satisfactory.

Now we, Aquila Walsh, Esquire, the Honorable Edward Barron Chandler, Charles John Brydges Esquire, and the Honorable Archibald Woodbury McLelan, Commissioners appointed under and by virtue of the Act of the Parliament of Canada, passed in the Session held in the 31st year of Her Majesty's reign, intituled "An Act respecting the

160 construction of the Intercolonial Railway," do hereby give you, and each and every one of you, notice, that we have, by writing bearing even date herewith, and signed by the Chairman of the Board of Commissioners, given to the said Jean Baptiste Bertrand and François Xavier Bertrand seven clear days' notice of our intention to take the whole of the works of the said Section No. 15, out of their hands, and to employ such means as we may see fit to complete such works at their expense, and that you will be held liable for all extra expenditure incurred thereby.

Dated at the City of Ottawa, in the Province of Ontario, this thirtieth day of May, in the year 1873, by me Aquila Walsh, Esquire, Chairman of the Board of Commissioners.

(Signed,) A. WALSH,
Chairman.

170

[688.]

COPY of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 31st May, 1873.

On a Report dated 27th May, 1873, from the Commissioner appointed to construct the Intercolonial Railway, submitting in relation to the schedule rates to be applied in making up monthly certificates for the contracts, that in the Order in Council passed in February, 1872, establishing a schedule of rates, it was provided that after the opening "of the spring, "and when the work still to be done on each contract can be accurately ascertained, the "prices be again revised so as to keep the payments within the gross amount of the

180 'contracts;'

That the Chief Engineer, in a letter dated 23rd May, 1872, suggested "that the rates "as established should be continued for the months of May and June, and until such "further time as the Commissioner may be able to report to the Council a reduction "expedient and advisable;'

That, they, the Commissioners, reported to the Council, embodying the suggestion of the Chief Engineer, and recommending that the then existing rates should be continued to the end of June, which Report was approved by Order in Council of 11th June, 1872;

That the revision of prices was not made at the time indicated in the said Order in Council, but the staff were employed (in connection with their other duties) in a careful
190 revision of the quantities upon the several sections during the season of 1872;

That the Chief Engineer, in a letter dated 16th April, 1873, states the position of the several contracts in reference to work still to execute;

That upon the receipt of this letter the Commissioner reduced the estimates for work executed in the month of April upon several of the sections;

That, in the opinion of the Commissioners, the schedule rates should be revised; they therefore recommend that the Chief Engineer be authorized and directed to apply the balance of the contract sum remaining unpaid to the work remaining to be executed in each case, and to make out certificates for monthly payments for the future upon this basis

On the recommendation of the Honorable the Minister of Public Works, the Committee advise that the Commissioners be informed that without application to Council they should have reduced the rates from the 1st July last, as they had not received instructions to continue those previously existing.

Certified.

(Signed,)

W. A. HIMSWORTH,

Clerk, Privy Council.

To the Commissioners of the Intercolonial Railway.

[689.]

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER,

OTTAWA, 31st May, 1873.

210 DEAR SIR,—I beg, herewith, to furnish a statement, showing the financial position of the several contracts on the 1st May, 1873, prepared from the most recent information which I have obtained.

This statement shows the value of the work still to be executed, the balance of contract sums unpaid, and the amounts in each case overpaid.

Contract.	Value of Work still to be done at Present U. C. prices.	Balance of Contract sums unpaid.	Overpaid 1st May, 1873.
Contract No. 3.....	114,602	10,444	104,158
do 6.....	170,622	73,946	96,976
220 do 9.....	53,644	10,897	42,747
do 15.....	136,416	1,520	134,896

Yours very truly,

(Signed,)

SANDFORD FLEMING.

RALPH JONES, Esq.,

Secretary.

[690.]

31st May, 1876.

By Telegraph from Ottawa.

To L. G. BELL.

230 The Commissioners will assume Contracts three (3), five (5), nine (9), and fifteen (15), on ninth (9th) June, and will appoint agents to manage work and pay workmen; Engineering staff will remain as before, and see the sections completed substantially, as originally intended under specification and contracts. Desirable that Engineers should assist agents every reasonable way.

(Signed,)

SANDFORD FLEMING.

[691.]

DALHOUSIE, 2nd June, 1873.

DEAR ODELL,—On Saturday evening I got the following telegram from Mr. Fleming
 "The Commissioners will assume Contracts 3, 6, 9, and 15 on the 9th June, and will appoint
 agents to manage works and pay workmen. Engineering staff will remain as before, and
 see the sections completed substantially, as originally intended under specification and
 240 contracts. Desirable that Engineers should assist agents every reasonable way."

Better not say anything publicly about this until the 9th.

Yours very truly,

(Signed,)

LEONARD G. BELL.

[692.]

INTERCOLONIAL RAILWAY,

OFFICE OF THE CHIEF ENGINEER.

OTTAWA, 3rd June, 1873.

MY DEAR SIR,—I herewith enclose a letter dated May 29th, from the Secretary to me,
 enclosing bills of extra claims made by the contractors for Sections 3, 6, 9 and 15. I have
 seen Mr. Marcus Smith, who is now here, and entered in pencil all the information that he can
 250 recollect with reference to the various items. I have now to request that you will go care-
 fully over the bill and write on each sheet what you know about the facts, embracing what
 I have entered in pencil, unless you have reason to think that the latter is not strictly
 correct. When done please return to me.

Yours very truly,

(Signed,)

SANDFORD FLEMING.

L. G. BELL, Esq.,

Dalhousie, N. B.

[693.]

To Jean Baptiste Bertrand, of the City of Quebec, in the Province of Quebec, in the Do-
 260 minion of Canada, Contractor, François-Xavier Bertrand, of the said City of Quebec,
 Contractor, Contractors for the construction of Section No. 9 (number nine) of the
 Intercolonial Railway.

You are hereby required to take notice, that in pursuance of the notice given to you,
 bearing date on the 30th day of May, in the year 1873, of our intention to take the work
 out of your hands for the construction of Section No. 9 of the Intercolonial Railway;

We, the Commissioners appointed under and by virtue of an Act of the Parliament of
 Canada, passed in the Session of the 31st year of Her Majesty's reign, intituled: "An Act
 "respecting the construction of the Intercolonial Railway," have taken the works upon
 said Section No. 9 out of your hands.

Dated at the City of Ottawa, in the Province of Ontario, this ninth day of June, in
 the year 1873, and signed by me, Aquila Walsh, Esq., Chairman of the Board of
 Commissioners.

(Signed,)

A. WALSH,

Chairman.

[694.]

To Jean Baptiste Bertrand, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Contractor, and François-Xavier Bertrand, of the said City of Quebec, Contractors for the construction of Section No. 15 (number fifteen) of the Interecolonial Railway.

280 You are hereby required to take notice, that, in pursuance of the notice given you, bearing date on the thirtieth day of May in the year 1873, of our intention to take the work out of your hands for the construction of Section No. 15 of the Interecolonial Railway;

We, the Commissioners appointed under and by virtue of an Act of the Parliament of Canada, passed in the Session of the 31st year of Her Majesty's reign, intituled "An Act respecting the construction of the Interecolonial Railway," have taken the works upon said Section No. 15 out of your hands.

Dated at the City of Ottawa, in the Province of Ontario, this ninth day of June, in the year 1873, and signed by me, Aquila Walsh, Esquire, Chairman of the Board of Com-
290 missioners.

(Signed,)

A. WALSH,

Chairman.

[695.]

To Thomas Glover, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Merchant, and John Sharland Fry, of the said City of Quebec, Merchant.

You, and each of you, are hereby required to take notice, that in pursuance of the notice given by us to you, bearing date the thirtieth day of May, in the year 1873, of our intention to take the work out of the hands of Jean Baptiste Bertrand and François-Xavier Bertrand, for the construction of Section No. 9 of the Interecolonial Railway;

300 We, the Commissioners appointed under and by virtue of an Act of the Parliament of Canada, passed in the Session of the 31st year of Her Majesty's reign, intituled "An Act respecting the construction of the Interecolonial Railway," have taken the works for the construction of the said Section No. 9 out of the hands of the said Jean Baptiste Bertrand and François Xavier Bertrand.

Dated at the City of Ottawa, in the Province of Ontario, this ninth day of June, in the year 1873, and signed by me, Aquila Walsh, Esquire, Chairman of the Board of Commissioners.

(Signed,)

A. WALSH,

Chairman.

310 [696.]

To Thomas Glover, of the City of Quebec, in the Province of Quebec, in the Dominion of Canada, Merchant, and John Sharland Fry, of the said City of Quebec, Merchant.

You and each of you are hereby required to take notice, that in pursuance of the notice given by us to you, bearing date the thirtieth day of May, in the year 1873, of our intention to take the work out of the hands of Jean Baptiste Bertrand and François Xavier Bertrand, for the construction of Section No. 15 of the Intercolonial Railway;

We, the Commissioners appointed under and by virtue of an Act of the Parliament of Canada, passed in the Session of the 31st year of Her Majesty's reign, intituled "An Act respecting the construction of the Intercolonial Railway," have taken the works for construction of the said Section No. 15 out of the hands of the said Jean Baptiste Bertrand and François Xavier Bertrand.

Dated at the City of Ottawa, in the Province of Ontario, this ninth day of June, in the year 1873, and signed by me, Aquila Walsh, Esquire, Chairman of the Board of Commissioners.

(Signed,) A. WALSH,
Chairman.

[697.]

9th June, 1873.

By Telegraph from Campbellton
To L. G. BELL.

330 Please make estimates for four sections up to Saturday night last.

RALPH JONES.

[698.]

DALHOUSIE, 10th June, 1873.

DEAR SIR,—Herewith I send the usual certificates for work up to the end of May. Yesterday I got instructions from Mr. Jones, the Secretary, to make up the estimates for 3, 6, 9 and 15 up to the night of the 7th inst., but as I had forwarded to you the items by telegraph, I now send these certificates, to be followed in a few days by those that Mr. Jones asks for.

I remain, dear Sir,

Yours very sincerely,

LEONARD G. BELL.

340

SANDFORD FLEMING, Esq.

[699.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT.
SECTION No. 9, (M.)
BATHURST, 11th June, 1873.

DEAR MR. BELL,—

* * * * *

I received the following reply to my telegram to Mr. Fleming in reference to Mr. Ferguson's bridge.

(COPY.)

350 "I refer you to Mr. Bell. I have no recollection of telling Mr. Ferguson height of
"bridge."

"(Signed,) S. FLEMING."

Give me your answer in the matter. The barn doors measure about 10 ft. 4 in. clear.
I want to set out the foundation at once.

Yours truly,
(Signed,) CHAS. ODELL.

[700.]

DALHOUSIE, 12th June, 1873.

DEAR ODELL,—Your certificates arrived this morning.

360 Let Mr. Ferguson's bridge be built in such a place as (without making any hollow in
his road under the bridge) he shall have a clear headway between the surface of the road
and the under side of the wooden girders of twelve feet, a headway amply sufficient for
any load he is ever likely to carry through the bridge; and a headway two feet higher
than what would have been available for a load of hay in the arched bridge which he
demanded at Station 325.

Yours very truly,
(Signed,) LEONARD G. BELL.

[701.]

INTERCOLONIAL RAILWAY,
OFFICE OF THE CHIEF ENGINEER,
OTTAWA, 17th June, 1873.

370 MY DEAR SIR,—On all sections, the original printed quantities have, to a greater or
lesser extent, been reduced. The Commissioners want to know how far the reductions are
due to changes in location and grades.

Have you the means of giving this information as far as the sections on your District
are concerned? If so, will you be so good as to furnish me with a statement shewing, in one
column, the original bill of works; in another, the last revised quantities; in a third, the
reduction (or addition) due simply to changes in location and grades, and in a fourth
column the reductions (or additions) due to other causes?

Yours truly,
(Signed,) SANDFORD FLEMING.

380 L. G. BELL, Esq.,
Dalhousie.

[702.]

DALHOUSIE, 19th June, 1873.

DEAR SIR,—A short time ago, I received instructions from Mr. Jones, the Secretary, to prepare certificates in the usual form, of the work done on the four contracts, 3, 6, 9 and 15 up to the night of the 17th instant, so as to show the work done under the immediate and uncontrolled superintendency of the contractors, before the assuming of the works by the Commissioners. I now send these certificates to you for 3, 6, 9 and 15, no work having been done on No. 9 during the time between the end of May and the 7th June.

In the certificates at the end of June, the estimates shall be made out for these four sections for the work done between 7th June and the end of the month, unless otherwise
390 directed by you.

I remain, dear Sir,

Yours very sincerely,

(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[703.]

DALHOUSIE, 7th July, 1873.

DEAR SIR,—Herewith I send the certificates for June. Those for the four contracts 3, 6, 9, and 15, show the work done since the 9th June, the day on which the works were assumed by the Commissioners.

I remain, dear Sir,

Yours very sincerely,

(Signed,) LEONARD G. BELL.

400

SANDFORD FLEMING, Esq.,

[704.]

BATHURST, 7th July, 1873.

DEAR MR. BELL.—The contractors are about completing the cattle guards on Contract 9. Is the distance between the stringers to remain the same as shewn on the plan, or changed to suit 4 ft 8½ guage.

Please inform McMillan, who is at Belledune, on this point, so that he may give the proper instructions.

Yours very truly,

(Signed,) CHARLES ODELL.

410

[705.]

(Telegram.)

TO COLLINGWOOD SCHRIEBER,
Charlottetown.

BLACK LANDS, 14th July, 1873.

When may I expect those cars and wheels being sent to Bathurst for the Nipissiguit cutting? Answer to Campbellton.

(Signed,) R. McLENNAN.

[706.]

(Telegram.)

420 To COLLINGWOOD SCHRIEBER,
Charlottetown.

BATHURST, 17th July, 1873.

Cars delayed at Point du Chene; can you send me sketch to enable me to start building some?

(Signed,) CHARLES ODELL.

[707.]

DALHOUSIE, 26th July, 1873.

DEAR SIR,—In fully completing the earthworks on Contracts 3, 6, 9 and 15, on which you have the contract for ballasting, it may, in some cases, happen that it would be more convenient to fill up with ballast some embankments that are a few inches below their proper grade level, and also in some places where gravel slopes are to be cleared away, it may be convenient to employ you to take away and deposit on the embankments the spare stuff. One place where the last mentioned contingency may be, is the gravel cutting at Station 181, east of Morrissey's Rock, where some 5,000 cubic yards have to be removed, and possibly deposited on the embankment between Stations 195 and 205.

Before settling on this service, I wish to know definitely what payment you would demand and agree to take for such works as those named?

Please give me an answer as soon as possible.

Yours very truly,
(Signed,) LEONARD G. BELL.

440 MESSRS. JOHN MACDONNELL & Co.,
Campbellton.

[708.]

DALHOUSIE, 26th July, 1873.

DEAR SIR,—See if there be at the Black Lands store a stock of shovels, and do what you can to send four or five dozen down by the earliest opportunity to Bathurst, addressed to Mr. Odell. He wants them much he says.

Yours very truly,
(Signed,) LEONARD G. BELL.

Mr. H. TOWNSEND,
BLACK LANDS.

450 Since writing the above I have got a telegram from Mr. Odell, asking for picks. Can you send him any? Do if you can.

L. G. B.

[709.]

DALHOUSIE, 26th July, 1873.

DEAR ODELL,—What is going on at the big cut? You have told me of having sent away the old waggons, but not of having got the new. Two frogs came up here from Moncton, but nothing else. Stevenson will get three complete sets sent down from River du Loup by a schooner he is chartering. Foster, at Point du Chêne, telegraphs that the dump cart wheels addressed Dalhousie were ordered to Bathurst by Mr. Schreiber, when he sent them by "Rothesay Castle." Your telegram has come, and shows some bungle, to show
460 which I wrote the above. I have asked Townsend to send you some shovels and picks if he has them.

Yours very truly,

(Signed,)

LEONARD G. BELL.

[710.]

BELLEDUNE, 29th July, 1873.

MY DEAR SIR,—I have just been going over Contract 9 again, and am of opinion that it is quite unnecessary to have two foremen, side by side at the borrowing west of Armstrong's Brook, as one man can easily perform the duty. I found Dickey, the foreman of the gang at the lower lift there, had 15 men and 6 carts at work, and that two of the carts were at least one half the time standing idle in the pit.

470 I asked the meaning of this, and he said Townsend had ordered him to put on more carts.

After watching them all working for some time, I ordered him to discharge two carts, and decided it was impossible for him (even with more men) to work more than four carts, as they would be in each other's way on the dump.

I shall also make a change in the working of the quarry cut.

I am further of opinion that it will not be necessary for Townsend or Hogan to continue their jurisdiction or supervision over this contract any longer, as I can, with McMillan's assistance, easily work it to the satisfaction of all concerned, and by that means save some expense.

480 If you agree with my views, will you please notify Townsend and Hogan to that effect; and at the same time tell him that Dickey's services as foreman at Armstrong's Brook will not be required after the 31st prox.

Please get from Townsend the rate of wages of foremen and men at grading and those at fencing on his end of this contract, and send it to me.

Yours very truly,

(Signed,)

CHAS. ODELL.

L. G. BELL, Esq.

[711.] BATHURST, 1st August, 1873.
 To L. G. BELL,
 Dalhousie.
 490 Berlinguet sold Murphy engine; don't let it go, we require it at Mill Stream.
 (Signed,) CHAS. ODELL.

[712.] BATHURST, 1st August, 1873.
 To H. TOWNSEND,
 Black Lands.
 Murphy cannot have engine. We require it at Mill stream at once.
 (Signed,) CHAS ODELL.

[713.] 1st August, 1873.
 To H. TOWNSEND,
 500 BLACK LANDS.
 Odell telegraphs that the engine is wanted at Mill Stream. Do not let engine at Benjamin go to Murphy until necessity at Mill Stream is over.
 (Signed,) L. G. BELL.

[714.] 1st August, 1873.
 To MR. MURPHY,
 Metapedia.
 Odell telegraphs he wants the engine now working at Benjamin, so you cannot get it yet.
 (Signed,) L. G. BELL.

[715.] 1st August, 1873.
 510 By Telegraph from Metapedia
 To L. G. BELL.
 I have bought and have been solely depending on the engine; my horses are away for it. If you stop it I hold you responsible for consequences; Mr. Fleming would not think of doing such.
 (Signed,) M. MURPHY.

[716.]

BLACK LANDS, 1st August, 1873.

To CHAS. ODELL.

Just received four messages. Engine away; was sold last Wednesday by Mr. Berlinguet—very sorry.

520

(Signed,)

HARRY TOWNSEND.

[717.]

1st August, 1873.

By Telegraph from Bathurst

To L. G. BELL.

Engine has left for Metapedia; stop it and send down to Mill Stream. Had no right to sell.

(Signed,)

CHAS. ODELL.

[718.]

1st August, 1873.

To C. ODELL, Esq.,

Bathurst.

580

Out of my power to stop engine now. Have you no engine at Millstream?

(Signed,)

L. G. BELL.

[719.]

2nd August, 1873.

By Telegraph from Blacklands

To L. G. BELL.

Murphy took away engine yesterday morning six hours before I received the least intimation that it was wanted. I am coming up to see you.

H. TOWNSEND.

[720.]

CAMPBELLTON, 2nd August, 1873.

To L. G. BELL,

540

Can engine be stopped for Odell; coming now from contract six.

H. A. F. MACLEOD.

[721.]

DALHOUSIE, 2nd August, 1873.

To H. F. DONKIN,

Campbellton.

Engine was paid for and removed before Odell's demand, and so is Murphy's property, and cannot be stopped.

(Signed,)

L. G. BELL.

[722.]

BELLEDUNE, 5th August, 1873.

DEAR SIR,—A few days ago I wrote to Mr. Harris asking him to send me a list of the
550 land-owners and occupiers of Crown lands on the part of Contract No. 9 contained in the
County of Restigouche, with the stations, as near as could be obtained, at which the
various property lines cross the railway.

To this Mr. Harris replies that the names of the land-owners and occupiers of Crown
lands on the part of Contract 9 contained in the County of Restigouche, you will find on
the plan of centre line of railway of which you possess a tracing.

I do possess a tracing of the centre line of railway, but there is neither name nor
number on it relating to the land-owners or occupiers of the County of Restigouche.

I should like to have this very much, and would not have written to Mr. Harris for it,
had ' not required it.

560 Will you please to have it sent me?

Yours very truly,

(Signed,)

JOHN T. McMILLAN.

L. G. BELL, Esq.

[723.]

(Telegram.)

TO CHARLES ODELL, Esq.

BLACK LANDS, August 13th, 1873.

We have all the timber at Jacquet River for the sign-board posts of number nine; do
not order any.

(Signed,)

J. B. BERTRAND.

570 [724.]

BATHURST, 15th August, 1873.

SIR,—We have the honour to submit, for your consideration, the following facts in con-
nection with Contract No. 15.

That by the conditions agreed upon between the Commissioners and Mr. Fry at
Ottawa the 30th of May last, and subsequently carried out by Messrs. Jones & Stevenson
on the premises, it was clearly understood by all, that the works were to be prosecuted
as vigorously and as economically as before; that programme was faithfully carried out by
Mr. Jones during his tenure of office.

On the 16th June Mr. Schrieber visited the works, and ordered forty (40) waggons
to be made for the cut at Nepissiguit River.

580 On the 1st July he (Mr. S.) came back to put Mr. McLellan in charge of the works.
Mr. McLellan, accompanied by Mr. J. McDonald, contractor for ballasting, then acting as
friend, adviser, and spokesman, visited the line and concentrated their attention to that cut.
They appointed an additional foreman, removed all the waggons, rails and other appliances,
saying that the cut would be reorganized in a scientific manner, and that the plant ordered
by Mr. Schrieber would be delivered without delay; but we regret to inform you that it

was only on the 11th August, and after writing, telegraphing, and sending a man over for them, that they received *ten old waggons unfit for use in their present state, and wanting thorough repairs*, and in number about one-fourth of what is required to finish that cut in the same time as the remainder of the section, thus losing two months of the best season in the year
 590 and no prospect yet of seeing it organized in a practical manner for some time.

We quite comprehend the difficulty for the gentlemen now in charge to interfere in orders given before their appointment, but at the same time if the completion of that work is delayed until the fall or winter season, the difficulties and expenditure will be very much increased.

We have the honour to be, Sir,

Your most respectful servants,

J. B. BERTRAND & CO.

A WALSH, Esq., Chairman

Intercolonial Railway Commissioners.

600 [7-5.]

DALHOUSIE, 16th August, 1873.

DEAR ODELL.—About 6,000 cubic yards have to go into the Jacquet River bank, and on account of the *small size of the waggons*, not more than 200 cubic yards per day can be tipped at the very best, so that 30 good working days will at least be required to finish the bank, and most likely ten or twelve days more, so it would be too long to wait for these waggons. Besides, I find it is much better to have larger waggons for a cut there is hurry with, on account of the greater quantity of soil that can be tipped from the same number of waggons. In Nash's Creek cutting, 22 feet wide, there are some waggons 8 feet wide, on 5 feet 1½ inch gauge, and the ganger prefers these to others which he has on the same gauge, but with 5 feet wide boxes. So, set Nesbitt to work with all the force he can command to put those nine waggons of Schreiber's into fettle, and to make up ten more for the new wheels that you have. I am of opinion that the plan of making the boxes with standards morticed into the cross bottom bars, as Nesbitt suggested, is the best. It will save smith work, and will cause easier repairs, if such should be necessary in our time, the fixing being secured to the standards by carriage bolts, which you can buy. Mitchell & Onkes have about 18 waggons of 5 feet 6 inch gauge to sell, and I will see about them on Monday at Metapedia, and if these should not be available you will have to order from S. John. Townsend is to tell Hogan to confine himself to No. 6 after to-day

Yours in haste,

(Signed,)

L. G. BELL.

620 [726.]

DALHOUSIE, 22nd August, 1873.

DEAR ODELL,—I thought Mitchell's price would be rather high. What sizes are you making the new ones? Mitchell's hold $2\frac{1}{2}$ yards, but perhaps not of solid earth. I would make your new ones rather deep than wide, and so have a shade more room for working them in the gullet. Let me know, please, what you are doing—number, size, time, &c.

Yours very truly,

(Signed,) LEONARD G. BELL.

Push the waggons on quickly.

[727.]

MONTREAL TELEGRAPH COMPANY.

2nd September, 1873.

630 To C. ODELL,
Bathurst.

Better lay pipes with lead joints; build pits two feet wide, four feet long, of stone. He will talk in any case, and better give him no reason to complain.

(Signed,) L. G. BELL.

[728.]

DALHOUSIE, 3rd September, 1873.

DEAR ODELL,—In dismissing gangs of men give Stevenson some days' notice of your intention, as he is not at all times in a position to pay a large sum of money promptly when demanded, and it takes several days for him to get a supply of funds before being able to send away again the sums required at different places.

640

Yours very truly,

(Signed,) LEONARD G. BELL.

[729.]

9th September, 1873.

By Telegraph from St. Andrews
To L. G. BELL.

I leave for Ottawa Wednesday. Please forward report and all information respecting claims of contractors for Sections 3, 6, 9 and 15 with as little delay as possible. This is urgently pressed at Ottawa.

S. FLEMING.

[730.]

15th September, 1873,

650 By Telegraph from Ottawa,

To L. G. BELL.

Please send report by telegraph—position of work on Sections 3, 6, 9 and 15.

R. JONES.

[731.]

INTERCOLONIAL RAILWAY.
 RESTIGOUCHE DISTRICT.
 DALHOUSIE, 16th September, 1873.

DEAR SIR,—Herewith I beg leave to return the statement of claims for extra work said to have been done by the contractors on Sections 3, 6, 9 and 15, and also all the information which I can gain on the subject from the present members of the staff, and from 660 letters. It has been rather tedious work, but I trust you will yet receive the report in good time.

I remain, dear Sir,

Yours very sincerely,

(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

* * * * *

Contract No. 9.

1. Damages on account of the lands not being paid for, \$9,400.

Note—In the original there is an arithmetical error, 8,000 fence rails at 8c, \$64.00, instead of \$640.

Mr. Odell knows nothing of this item, as he did not come to reside on the works till 670 the spring of 1870.

Mr. J. T. McMillan came on the works in November, 1869, and never heard of any difficulty in getting permission, or of rails being taken. Many of the rails then cut are now lying on the ground.

I have a letter, dated 20th November, 1869, from Mr. Bertrand to Mr. Smith, asking if different parties owning land could prevent his men from working on the line, and if he could prevent these owners from cutting and taking away cedar rails and other timber, and if he might expect the Government to protect him. And I have another letter, dated 28th February, 1870, from Mr. Bertrand to Mr. Odell, stating that "we have now a quantity of rails on the line, fifteen feet long." On the whole, I think it appears there was some 680 obstruction and difficulty, but not serious or long continued.

2. Damages from not having an Engineer, \$10,000.

J. T. McMillan came to the work in November, 1869. At that time a considerable quantity of ground was staked out for clearing, and he and others continued staking out. McMillan states that the only work asked for, except clearing, was the rock cutting at Elm-Tree River, and that this was set out by Fowler, and worked during the winter of 1869-70.

I have a letter, dated 20th November, 1869, from Mr. Bertrand to Mr. Smith, saying that he had already sub-let some clearing and rock cutting; and another letter from same to same, dated Quebec, 10th December, 1869, stating that his agent on the section had in- 690 formed him "that our miners at Elm-Tree River have received no further instructions about the grading," but I have no complaint of later date on this subject. I have, however, a letter from Mr. Smith to Mr. Bertrand, dated 23rd November, 1869, stating that before the receipt of his letter of the 20th, he had sent two Engineers (one was Fowler)

to lay out the clearing and rock cuttings asked for. And another letter to Fowler at Belledune, giving him instructions. Another letter from Mr. Bertrand to Mr. Smith, dated 5th September, 1870, states, "Section 9 was let so late last fall that we were unable to procure tools before May."

3. Grubbing and close-cutting, \$2,200.

Mr. Odell says the contractors have been paid by measurement for a greater quantity 700 of this work than what is due to the road bed, because one of the assistants at one time allowed in his measurements grubbing in side ditches, and this allowance was never taken off; and that this quantity claimed as extra must be in side ditches and borrow-pits. The latest revised schedule gives 500 acres of clearing, close-cutting, and grubbing combined. The original bill of works gives 270 acres of clearing, 13 of close-cutting, and 26 of grubbing, equivalent to about 500 acres of clearing.

4. Damage for good cement condemned; costs, freight, and damage, \$5,000.

Mr. Odell states that any cement that was condemned was condemned on the report of Fotheringham, Inspector of Masonry, after testing, and that any barrels that proved good were used. I have a letter of Mr. Odell's to Mr. Smith, reporting that on 22nd July, 710 1870, Fotheringham had sent some samples, and that on 27th July, he (Mr. Odell) had examined the samples and condemned the cement as useless; and another letter from Mr. Odell reporting that the contractors also had tested the above cement, and had reshipped a portion of it to Quebec, and that out of six barrels of a second lot the contractor's foreman had tested some and reported to him that he had "found it just the same as the other," after having been a week under test.

I have also a letter from Mr. Bertrand to Mr. Smith, dated 17th August, 1870, stating: "We beg leave to remark to you that the samples you saw when you were here contained " too much sand, and we now find that it will not take more than one to one, or one and a " half at the utmost."

720 5. Stone condemned, \$42,700.

I beg leave to refer you to Mr. Smith's letter to you, dated 13th July, 1870, giving Holmes' report on the Grand Anse quarries. On 23rd July, Mr. Smith sent a copy of this letter to Mr. Odell, with instructions to read it to Mr. Bertrand.

I have a letter from Mr. Bertrand to Mr. Smith, dated 13th July, 1870, thanking him for sending Holmes to inspect the Grand Anse quarries, and promising "that he will always " endeavour to do our best to provide best stone, and every other material;" and another letter from same to same, dated 5th September, 1870, saying "we will continue to work " the best quarry at Grand Anse."

I have also a letter from Fotheringham to Mr. Odell, dated 12th April, 1871, stating 730 that stone that had been delivered at Stations 865, 889, 909, was "utterly unfit for railway " work," and that during an experience of forty years he had "never seen such stone " delivered for any class of masonry."

Picked stones from Grand Anse were used in bridge at 807, and arch at 786, and also in backing and second-class work.

6. One thousand yards granite masonry, \$15,000.

Mr. Odell knows nothing of the statement that the difference in cost between granite and other stone was promised to be paid. He says that about one hundred yards of

Bathurst granite were used at Nigadoo Bridge, which quantity includes bridge seat and coping. Distance from Bathurst quarries to Nigadoo 12 to 13 miles, and from the Elm Tree River quarries to Nigadoo, 7 miles along the railway. About 415 cubic yards in all of Bathurst granite were used at Nigadoo, Elm Tree and road bridge at 807. Also about 23 cubic yards for covers to the culvert at Station 222.

7. Opening of Bass River quarry, \$7,000.

Mr. Odell does not remember Bass River stone being used on the section, except in three small culverts at the lower end of the section, and before Mr. Smith's condemning the stone, about 250 cubic yards in all.

8. Ten thousand yards rock, \$15,000.

In the bill of works this cutting is given as containing 13,626 cubic yards of earth. In execution it turned out 4,000 cubic yards of rock, and 7,071 cubic yards of earth.

750 All the cuttings given in the original bill of works as containing only solid rock, contained a very large quantity of gravel instead of rock, so that in the whole Section the bill of works gives 82,000 cubic yards of rock, when the quantity actually on the line was only 66,600 cubic yards.

The rock was not the hardest on the Section, but was much more easily worked than that in either of the Elm Tree cuttings.

Contract No. 15.

1. Increased value in granite masonry, \$132,000.

760 According to a test made by Mr. Peterson, the sandstone out of the quarry in the valley of the Nipissiguit River contained 20 per cent. of clay, and Mr. Peterson, in a letter dated 21st Oct., 1871, reports that he can find no one to speak in favor of the stone, though many have used it. Mr. Mann reports that he was informed by some of the men working at it that some of the stones would not hold in the grips.

The quantity, 12,000 cubic yards, takes in nearly all the masonry, both first and second class on the Section, the total quantity being about 13,000 cubic yards, against 16,000 cubic yards in the bill of works.

2. Ten acres grubbing, \$600.

Mr. Mann, who was fully conversant with the details, in making up the last revised schedule, says "all fillings two feet and under, and all cuttings under two feet, were fully "allowed for," and that this charge must be for grubbing in side ditches or borrow pits.

770 3. 3,000 cubic yards backing, executed as first-class face work, \$18,000.

As far as Mr. Odell's experience and my own go, no such work is in the Tête a Gauche bridge. The Tête a Gauche and Nipissiguit bridges are estimated in the original bill of works to be first-class work, both face and back.

This 3,000 cubic yards must be all included in the 12,000 cubic yards on which the extra price of \$11 per cubic yard is demanded in the first item of the claims on this Section.

4. Levelling of foundations, \$3,000.

Mr. Mann reports that "there was hardly any dressing on any of the foundations at "Nipissiguit, except the fifth pier, which was stepped, as the rock was on an incline, but

780 "in all cases a level bed was made for the nose and sides of the cut-waters. Concrete was
 "used in a couple of foundations to level off under the main part of the pier, allowed by Mr.
 "Smith."

A letter of Mr. Peterson corroborates the above statement about the stepping.

5. Special stones, \$900.

Mr. Mann reports "there are such pieces put in for the girders to rest on, but never
 "heard they were specially instructed to do so. Have often heard them say the larger they
 "would dress a stone, the better; because, if said stone was put in in two pieces, they would
 "have two joints more to dress, of from seven to eight feet surface. There are as large
 "stones as above in other parts of the work, as quoins or stretchers."

790 [732.]

MONTREAL TELEGRAPH COMPANY.

17th September, 1873.

To RALPH JONES,
 Ottawa.

* * * * *

Contract No. 9—about 2 miles of fencing; Armstrong's Brook bank, one week's work;
 other earthwork, only side ditches and level crossings; a little coping of masonry and
 ballast wall at Belledune bridge. Contract 15.—Bank at Mill Stream almost complete;
 same at Hon. John Ferguson's farm, and cut there nearly out, only some sloping on one
 side of big cut at Tête à Gauche; all else, up to Nepissiguit Cut, wants only surfacing, side
 ditches and crossings. Nepissiguit Cut going on steadily; has been much delayed by
 800 waggons taken away, and others not sent immediately, but other work has prospered
 accordingly; one third fencing yet to be done; and five bridges over railway in cuttings;
 much material ready for them.

(Signed,) L. G. BELL.

[733.]

DALHOUSIE, 23rd September, 1873.

DEAR ODELL,—In a letter from Mr. Jones, received yesterday, I am asked to send a
 weekly report of the progress of the work in 3, 6, 9 and 15; this report to include the pro-
 gress in iron bridges. I wish to prepare this report on each Saturday, so please send me the
 materials for 9 and 15 on each Friday, so that I may have them on Saturday morning. A
 short report, stating the chief work going on in each place, and the men employed, pro-
 810 gress made, time required to finish, difficulties, &c. Please do not fail, as Mr. Brydges
 has asked for these reports.

I cannot go down this week.

Yours very truly,

(Signed,) LEONARD G. BELL.

[734.]

DALHOUSIE, 23rd September, 1873.

DEAR ODELL,—Please to mail your certificates for this month, and for each succeeding month, not later than the last day of each month. I have often had to wait in the office day after day for nearly a week for certificates coming in, when I was required out on the works; and I am asking the same from all the sections, so that I may have one set day for 820 attending to the certificates and forwarding them to Ottawa.

Yours very sincerely,
(Signed,) LEONARD G. BELL.

[735.]

BATHURST, 26th September, 1873.

DEAR MR. BELL,—Your letters of the 23rd duly received, and in reply to the one referring to weekly report of progress, I enclose herewith a brief statement of what is and has been going on for the past week, ending, as I have made it up to, yesterday.

I shall have the certificates mailed to you on the 30th.

Yours very truly,
(Signed,) CHAS. ODELL.

830 [736.]

DALHOUSIE, 27th September, 1873.

DEAR SIR,—In compliance with the request in your letter of 17th September, asking for weekly progress reports for Sections 3, 6, 9 and 15, I beg leave to submit to you, for the information of the Commissioners, the following report for the week now ended.

Contract No. 9.

The average number of men employed, of all kinds, during the past week has been a little over 100.

The embankment at Armstrong's Brook requires about two days' work to complete it to the full width, it has the full height.

The trimming of the bottom of the rock cutting east of Elm Tree, has been finished 840 during the week.

The fencing will be completed in a few days, about end of next week.

The remainder of the work has been chiefly in making side ditches in clay and rock cuttings. The rock cuttings at 570 and 620 are the only ones of importance now requiring side ditches.

Contract No. 15.

The bridge at Mill Stream wants only one course of parapets, and the coping; both on east abutment. West abutment is finished.

The embankment at Mill Stream Bridge is being made up from borrowing, and will most likely be finished next week.

850 The cutting west of Tête à Gauche Bridge has still some stuff on north slope, but will probably be completed in a fortnight.

The embankment through Hon. John Ferguson's farm is now closed, but requires a little trimming.



The cutting east of the last mentioned bank has still about one quarter of the slopes to be taken off. The gullet is finished.

The cutting east of the Middle River at Bathurst is almost quite finished.

The overhead road bridge in last cutting is completed, but wants the approaches to be made.

The embankment east of last cutting is finished.

860 The Nipissiguit cutting has been going on favorably. The gullet is now past the deepest part, and has been advancing at the rate of 20 feet per week, on the average.

About $3\frac{1}{2}$ miles of fencing yet to be done, three-fourths of a mile of which will probably be done next month.

The average number of men of all kinds employed daily has been 175.

I remain, dear Sir,

Yours very sincerely,

(Signed,)

LEONARD G. BELL.

RALPH JONES, Esq.

[737.]

DALHOUSIE, 27th September, 1873.

870 DEAR SIR,—A few days ago I received a letter from the Secretary saying that the Commissioners wished me to send to them, weekly, a report on the progress of 3, 6, 9 and 15. To-night I have written the report for the past week. Do you wish me to forward to you a copy of it, and those that will succeed it, or may I refer you to Mr. Jones for them?

I remain, dear Sir,

Yours very sincerely,

(Signed,)

LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[738.]

DALHOUSIE, 2nd October, 1873.

880 DEAR SIR,—If you should see anything injuriously affecting the efficient and economical execution of the works, I request you will immediately give me intelligence of it, there being many petty details which may escape my observation, although I take an earnest interest in carrying out the works successfully and cheaply.

Yours very sincerely,

(Signed,)

LEONARD G. BELL.

J. B. BERTRAND, Esq.

[739.]

DALHOUSIE, 6th October, 1873.

DEAR SIR,—I beg leave to send you, for the information of the Commissioners, the following statement of the progress of the works during the past week on Contracts 3, 6, 9 and 15.

* * * * *

890

Contract No. 9.

The embankment at Armstrong's Brook is completed, but the cutting east of it is not yet quite cleared. A waggon road was in the cutting, and the bottom, which was in many places always too high, could not be taken out until the waggon road was lifted. Neither could the east end of the cutting (taken out since the Commissioners assumed the works) be made to the proper level, as the cutting was wet. All will, however, be finished in about ten days. Many water tables in rock have been cleared out, and this week will nearly finish all on the Section. The sign-posts are all made, and eight of them are put in place. Five cattle-guards are yet to be built. The timber for them is being prepared.

Contract No. 15.

900

The water-tables in the cutting up to Station 30 have been in progress, and will be finished this week. Cattle-guards are nearly finished at the Mill Stream road. The Mill Stream bridge is almost finished. The embankment east of Mill Stream wants little more than making up round the abutment of the bridge. Slopes of Tête à Gauche cut are all out, and the water tables, which are required to be good, will be made this week.

The embankment at 330 is finished, all but a little dressing, and the cutting east of it is almost quite sloped. The slopes of the cutting at 290 have been left for ballast, though scarcely fit for that purpose; and the bottom, which is very wet, cannot consequently be properly drained until the slopes are taken off, and the temporary drainage need not be done until the rails are nearly laid up. The cutting at 465 is finished. The embankment

910 west of the Nipissiguit cut wants now only a little on the sides in two places.

The cedar culverts for a level crossing at 550.20 have been built, and half the approaches made. Nipissiguit cutting is going on favorably, the gullet being at 581.80, and slopes about 583. The embankment is down to 597.40, with from 5 to 8 feet deep of the bottom for 60 feet more. The bank is well up to grade and width.

Not much has been done in fencing, but parties are in the bush getting out materials.

* * * * *

I remain, dear Sir, yours very truly,

LEONARD G. BELL.

RALPH JONES, Esq.

920 [740.]

DALHOUSIE, 6th October, 1873.

DEAR SIR,—Herewith I beg leave to send you a copy of the report on the progress of the works on Nos. 3, 6, 9 and 15 for the week ending 27th September, and also under cover to you the report for last week.

I remain, dear Sir,

Yours very sincerely,

(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[741.]

DALHOUSIE, 11th October, 1873.

DEAR SIR,—Enclosed I send to you, in the absence of Mr. Fleming, the week's report on Contracts Nos. 3, 6, 9 and 15, which please to forward to Mr. Jones as soon as possible.

980

I remain, dear Sir,

Yours very truly,

(Signed,) LEONARD G. BELL.

T. R. BURPEE, Esq.

[742.]

DALHOUSIE, 11th October, 1873.

DEAR SIR,—Herewith I beg leave to send to you, for the information of the Commissioners, the following report on the works that have been going on during this week. The first two days of the week were very wet and caused considerable delay.

* * * * *

Contract No. 9.

All the fences, except in a few places at cattle guards and bridges, are completed.

940 The grading of the cutting east of Armstrong's Brook will be completed in three days, and then only the side ditches will remain to be made.

All other works have advanced rapidly, and of the 100 men employed daily during this week, 40 will be dismissed on the 15th.

Contract No. 15.

The side ditches at Station 25 have been progressing but slowly on account of rain. The cattle guards at 30 and 50 are finished.

The east abutment of Mill Stream Bridge is finished.

The embankment at Mill Stream has proceeded slowly on account of the rain. It would require but a few days to finish it if the weather were fine.

950 It is necessary to widen a portion of the cutting at 166 to 174 (partly in rock) so as to make, at the side of the road bed, drains for surface water which cannot easily be carried away by ordinary catch-water drains. This work is begun.

Tête à Gauche cutting is finished.

The cutting and embankment at 330 will require a few days' work yet to finish them, as the work has been delayed by rain.

Mou began to dress stone for the bridge at 338 at the beginning of the week.

A farm crossing has been built at 495, and the embankment up to Little River Bridge is trimmed.

The embankment at 550 is finished.

960 The Nipissiguit Cut has been delayed several days, but the borrowing for making up the base of the embankment ahead of the waggon tip has been worked with advantage.

I remain, dear Sir,

Yours very truly,

(Signed,) LEONARD G. BELL.

RALPH JONES, Esq.

[743.]

DALHOUSIE, 22nd October, 1873.

DEAR SIR,—The work going on during last week in completing the work of Berlinguet and Bertrand on Sections 3, 6, 9 and 15 has been the following:—

* * * * *

Contract No. 9.

970 The gang trimming cutting west of Fournier's Brook has finished, and been dismissed on 14th.

Three parties working west of Belledune River have finished and been dismissed. Only two parties remain there.

Only a few cattle guards, sign boards and superstructure of beam culverts remain to be put up.

Contract 15.

Side ditches 19 to 36 finished.

Bank 33 to 40 finished.

Widening rock cutting 166 to 174 going on well.

980 Fencing between 184 and 210.

Side ditches 332 to 339 finished.

Foundations for overhead bridge at 337.45 half built.

Side ditches 501 to 520 finished.

Bank and a crossing 543 to 552 finished.

Nipissignit cut has been delayed by wet weather.

I remain, dear Sir,

Yours very sincerely,

(Signed,)

LEONARD G. BELL.

RALPH JONES, Esq.

990 [744.]

DALHOUSIE, 27th October 1873.

DEAR SIR,—The following work has been going on during last week on Contracts 3, 6, 9 and 15.

* * * * *

Contract No. 9.

Cutting east of Armstrong's Brook is finished and the gang dismissed. A small party has trimmed embankment at Elm Tree and been dismissed.

The ballast wall at Belledune River Bridge, east abutment, is built.

The remaining work is in distributing timber for cattle guards, setting this and culvert superstructure, and erecting sign posts.

About sixty men have been employed during the week.

Contract No. 15.

1000

The widening of the rock cutting at 166 to 174 going on well, and will be finished in a few days.

The fencing between 184 and 210 will also be finished in a few days.

Side ditches are being made between 276 and 295.

Side ditches finished between 520 and 538.

Trimming of cutting 558 to 566 and making side ditches are in progress.

Nipissiguit cutting going on favourably.

The masonry for the overhead bridge in Nipissiguit cut is about to be commenced, and the masonry for a similar bridge at 337 is finished.

1010 About 110 men are employed on Contract 15.

I remain, dear Sir,

Yours very truly,

(Signed,)

LEONARD G. BELL.

RALPH JONES, Esq.

[745.]

QUÉBEC, 30th octobre 1873.

MON CHER MONSIEUR,—Vous me pardonnerez de ne pas avoir répondu à votre lettre du 2 Oct., quand je vous dirai que j'étais absent de Bathurst ils me l'ont adressée à Québec; enfin, le mois c'est passé; et maintenant la position des ouvrages, et les circonstances où je me trouve ne me permettant pas de vous faire aucune remarque avantageuse.

1020 Je vous remercie infiniment pour la bonne volonté que vous avez montrée à mon égard dans les rencontres que nous avons eu touchant les devoirs de votre charge,

Croyez-moi

Votre obéissant serviteur

J. B. BERTRAND.

L. BELL, Ecr.

[746.]

DALHOUSIE, 4th November, 1873.

DEAR SIR,—I beg leave to submit the following report of the work going on during the past week on Contracts 3, 6, 9 and 15.

* * * * *

Contract No. 9.

1030 Only two parties have been at work during the week sinking foundations for cattle guards, &c., and erecting cattle guards, sign-posts and superstructure of beam culverts. The party sinking foundations has now finished and is dismissed.

Contract No. 15.

Cattle guards at 102.50 finished.

Side ditches 166 to 174 finished.

Fencing between 184 and 200 finished.

Side ditches and trimming cut from 277 to 295 completed.

All completed between 543 and 572.

- Masonry of overhead bridge in the Nipissiguit is commenced.
- 1040 The Nipissiguit cut has been retarded by wet weather. Scarcely any men could be employed in it during three days of last week.

I remain, dear Sir,
Yours very sincerely,
(Signed,) LEONARD G. BELL.

RALPH JONES, Esq.

[747.]

DALHOUSIE, 10th November, 1873.

DEAR SIR,—Herewith I send under cover to you the weekly report on the progress of the works on Contracts 3, 6, 9, 15. As the work is now almost closed for the season, and, as far as Berlinguet and Bertrand's contracts are concerned, almost completed, I 1050 suppose it will not be necessary to continue these reports.

I have, this evening, received your letter of 5th inst., telling me to make the location survey for the branch from Shaw's Cove to Dalhousie. I shall set about this without delay.

I remain, dear Sir,
Yours very sincerely,
(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[748.]

DALHOUSIE, 10th November, 1873.

DEAR SIR,—I beg leave to forward, for the information of the Commissioners, the following statement of the work going on during the past week on Contracts 3, 6, 9 and 15.

* * * * *

1060

Contract No. 9.

All the work of the contract is now almost completed, except what may have to be done to make up settlement of bank at Armstrong's Brook—to line or clear out the tunnel there, to make a firm road bed in a soft wet place at Station 40, in the part of the cutting last made, and in other settlements that may come.

Contract No. 15.

About 46 men have, on an average, been employed on the works.

Fencing has been completed between 0 and 500.

Cattle guards for the Vale Farm crossing have been completed.

The two north piers for the bridge in the Nipissiguit cut have been finished, and the 1070 cutting is going on favourably, though slowly; about 45 men being employed in it, except in broken weather.

The iron for the Mill Stream Bridge will be up in a few days.

I remain, dear Sir,
Yours very truly,
(Signed,) LEONARD G. BELL.

RALPH JONES, Esq.

[749.]

DALHOUSIE, 18th November, 1873.

DEAR SIR,—I beg leave to send you, for the information of the Commissioners, the usual weekly report on the work done during the past week on Contracts 3, 6, 9 and 15.

* * * * *

1080

Contract No. 9.

Stopped.

Contract No. 15.

Sign-boards have been put up at 362 and 399.

The Nipissiguit cut has not advanced much ahead, the chief work having been in preparing the foundations for the road bridge, and in bringing into form the oldest parts of the cutting and embankment. The masonry of the road bridge across the Nipissiguit cutting will be completed this week.

About 50 men have been employed.

The iron work of the Mill Stream Bridge is finished, and that of Grant's Brook is well 1090 forwarded.

I remain, dear Sir,

Yours very truly,

(Signed,) LEONARD G. BELL.

RALPH JONES, Esq.

[750.]

DALHOUSIE, 28th November, 1873.

DEAR ODELL,—Alexander Morrison, at the suggestion of R. C. Harris, on one of his visits to Bathurst, writes to me complaining about his road across the railway being stopped.

He says you have made "a crossing that is no use to him, unless extended to his road;" 1100 that you there put a fence across his road which he had to take down, and make a bridge for himself across the ditch. And he now applies to me to have the crossing extended to his road, as this would be cheaper than to build a new crossing. Where is the road? and what are its circumstances? I see on the land plan "Alexander Morrison" on two farms, one at 160 and the other at 122.

Yours very truly,

(Signed,) LEONARD G. BELL.

[751.]

DALHOUSIE, 29th November, 1873.

DEAR ODELL,—I do not think it possible that in this weather any work could be done to advantage, either in the Nipissiguit cut or elsewhere. So you had better make arrange- 1110 ments to have all work stopped and men paid off as soon as possible. There can be no hurry to warrant the expense of working at present, and the contractors will question the prudence of it. What is the present cost per yard of the Nipissiguit cut?

Yours very truly,

(Signed,) LEONARD G. BELL.

[752.]

1st December, 1873.

By Telegraph from Bathurst
To L. G. BELL.

Mr. Berlinguet is going down to arrange with you about his rolling stock. He will also arrange for sections nine and fifteen for me.

1120

J. B. BERTRAND.

[753.]

(Telegram.)

1st December, 1873.

To C. ODELL,
Bathurst.

Has all Bertrand's plant on nine and fifteen been gathered up and stored? If not, have it done at once, as Berlinguet comes down this week about it.

(Signed,) L. G. BELL.

[754.]

QUEBEC, 2nd December, 1873.

1130 SIR,—We beg respectfully to enclose you a copy of a letter sent by us to the Commissioners of the Intercolonial Railway, the contents of which show briefly the position we are in, and we beg respectfully to ask your further enquiry into our case, and prompt action in affording us the relief asked for.

We have the honour to be,

Your obedient, humble servants,

(Signed,)

F. X. BERLINGUET & Co.
Contractors for Sections 3 and 6.
" J. B. BERTRAND,
Contractors for Sections 9 and 15.

To the Honorable ALEX. MACKENZIE,
Minister of Public Works,
1140 Ottawa.

[755.]

QUEBEC, 2nd December, 1873.

GENTLEMEN,—Not having yet received any payment on account of the claims we have made for the large sums expended by us over and above what we have received for Sections 3, 6, 9 and 15 of the Intercolonial Railway, or yet any communication from you, except verbally, to our application, we beg again to press for action on your part, it being of

the utmost importance to us to lose as little time longer as possible in obtaining part payment at least, and in case you do not decide to take action yourselves, and grant us the relief we have been so long waiting for, we respectfully request that the matter be referred
2150 without delay to arbitration.

We have the honour to be, gentlemen,

Your obedient humble servants.

(Signed,)

F. X. BERLINGUET & Co.,

Contractors for Sections 3 and 6.

"

J. B. BERTRAND & Co.,

Contractors for Sections 9 and 15.

To the Commissioners of the
Intercolonial Railway, Ottawa.

[756.]

DALHOUSIE, 6th December, 1873.

1160 DEAR ODELL,—From what you say about continuing the Nipissiguit cutting, I think it may be as well to work on at it during this month, but do all you can (I suppose I do not need to tell you so) to push it as well as possible so as to make the cost low. But be prepared to have it stopped at the end of the month, for Stevenson has his orders to stop paying at that time all the Engineering Staff who got the sack about 13th October last. Make your calculations of the cost during this month as accurate and specific as possible.

Yours very sincerely,

(Signed,)

LEONARD G. BELL.

[757.]

INTERCOLONIAL RAILWAY,
ENGINEER'S OFFICE, RESTIGOUCHE DISTRICT,
CONTRACT No. 9, (M.)
BATHURST, 9th December, 1873.

1170

DEAR MR. BELL,—On examining the October certificates, Contract 9, I find the error in those sent you occurred in copying out the October telegraph form, by transposing the two last figures of the rock, which should have been 64,267 to agree with the certificate form. I enclose you another copy. These for November, Contract 9, are also quite correct, and should remain 908,387 and 0.0181, and the corresponding money value \$322,384 and \$65.

I have corrected the percentage in that of 15, the error occurred by omitting some of the cents in the addition.

Yours truly,

(Signed,)

CHARLES ODELL.

1180

MacLeod left me this morning *en route* for England.

C. O.

[758.]

DALHOUSIE, 19th December, 1873.

DEAR ODELL,—Last night I got a telegram from Mr. Fleming, telling me that probably in a few days I would receive instructions to make a survey of a branch to Shippegan, and to tell you to hold yourself in readiness.

I do not mean to say much about it until the time comes, and perhaps it would be as well for you to do the same, lest it should end in nought; but, in the mean time, clear up as far as you can the affairs of No. 15 before the end of the month. What contracts have
1190 you, or have you any?

Yours very truly,
(Signed) LEONARD G. BELL.

[759.]

COPY of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 3rd January, 1874.

On a Report dated 12th December 1873, from the Commissioners appointed to construct the Intercolonial Railway, submitting schedules prepared by the Chief Engineer, of rates in force on the several contracts, and stating that these, with the exception of Sections 13, 17 and 18, are rates which, according to the Report of the Chief Engineer, will
1200 keep the completion of the contracts within the lump sum of the contractors, that with reference to Section 13, the Commissioners deem it necessary to recommend a revision of the schedule, until the policy to be pursued in regard to this Section shall have been decided by the Governor in Council;

That in reference to Sections 17 and 18, they recommend a reduction for the future of twenty per cent on the rates now in force;

The Commissioners also submit the remaining schedules for the consideration and approval of Your Excellency in Council.

On the recommendation of the Honorable Mr. Mackenzie, the Committee advise that the schedule of rates be approved in accordance with the foregoing report of the Commis-
1210 sioners.

Certified.

(Signed), W. A. HIMSWORTH,
Clerk Privy Council.

To the Intercolonial Railway,
Commissioners, &c., &c., &c.

[760.]

DALHOUSIE, 5th January, 1874.

DEAR SIR,—Herewith I send you the certificates for December. As I have telegraphed you, no work has been done in 3 and 9 during the month.

I remain, dear Sir,

1220

Yours very sincerely,
(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[761.]

DALHOUSIE, 30th January, 1874.

DEAR SIR,—Last night I returned from Shippegan, and have to-day set about making copies of important documents to replace those burnt in your office. I send you to-night copies of the last revised schedules of Contracts 17, 18, 19 and 15, the only contracts on which any work of importance is going on. I hope you will have these schedules before my telegraphing the monthly certificates next week.

I remain, dear Sir,

Yours very sincerely,

(Signed,) LEONARD G. BELL.

1230

SANDFORD FLEMING, Esq.,

[962.]

DALHOUSIE, 6th February, 1874.

DEAR SIR,—Herewith I send you certificates for work done during last month, and also the last revised schedule of Contracts 3, 6 and 9, for which contracts there is no certificate for January. I send also by this mail copies of the certificates for December for work done on 17, 18, 19 and 15, and for November for work done on 3 and 9; also for work done in ballasting No. 3 and Campbellton engine house up to the end of November last, and in Campbellton freight-house and wood-shed up to end of October last. No work has been done in these last four items, nor on Contracts 3 and 9, since the dates of the certificates herewith sent.

1240

I remain, dear Sir,

Yours very sincerely,

LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[763.]

QUEBEC, 7th February, 1874.

SIR,—Enclosed I send you a memorandum and document of my clients, Messrs. Berlinguet & Bertrand, contractors for Sections 3, 6, 9 and 15 of the Intercolonial Railway.

You will see in the first lines of the memorandum the reasons why they do not address themselves to the Commissioners.

1250

I advised them not to trouble you with their claims during the elections. Now that they are over, I hope that you will be able to give them a favorable consideration. The interest they are paying on the amount which they claim is such a heavy charge that they are desirous of having as early a settlement as possible.

As you will see in reading over the memorandum, they claim no favor; they do not even claim extras; they only ask the payment of a large sum of money which they pretend to have expended for the completion of the works on their sections after their contract had been set aside.

My clients intend to leave for Ottawa about the middle of next week to give you any personal explanations on the facts stated in the memorandum.

1260

In the meantime, you would oblige me very much could you let me know what course you would like them to follow for pressing the claims with the Government; whether for instance they should have a lawyer to argue the legal points of their case before the Law Officers of the Crown, or explain verbally the statements of facts contained in their memorandum.

I have the honor to be, Sir,

Your most humble servant,

(Signed,) F. LANGELEIER,

M.P.P. for Montmagny.

1270 HON. ALEX. MACKENZIE.
Ottawa.

[764.]

QUEBEC, 10th February, 1874.

SIR,—The Commissioners of the Intercolonial Railway at their last meeting in Ottawa, on 9th December last, informed us verbally in reply to our letter of the week previous, that it was impossible for them to take up our case, seeing that they found our position and our claims were beyond their powers to deal with, and that to the Government only belonged the right to settle finally with us on the actual facts of our position in connection with the works performed by us on Sections Nos. 3, 6, 9, and 15, of the Intercolonial Railway, for which we were contractors up to the period our contracts were notified and
1280 departed from. This obliges us now to enter into some details with you, and to present you with some explanations and documents on their support, which will be sufficient, we hope, to convince you that our claims are well founded. To commence, we will state the circumstances which led us to undertake the works on these sections for a block sum of section.

You are aware that, contrary to the opinions of Sandford Fleming, Esq., (the Chief Engineer,) the Commissioners decided to ask for tenders at a lump sum to assist contractors. The Commissioners furnished them with a "Bill of Works," indicating the quantity and nature of the works to be executed from station to station as numbered in the profile, and they directed that the tenders should be accompanied by a schedule giving the prices
129 in detail for each description of work on which contractors had based their calculation, the object and result of these schedule prices given by contractors being, firstly, to give proof of their competency, but, above all, in order to determine the amount to be paid monthly as the works progressed. Seeing the hurried manner in which the quantities stated in the bill of works had been prepared, according to the views of the Commissioners themselves, and being only given as approximation, it was on that principle that we find the detailed prices in the schedules annexed to our contracts.

We undertook the work for a block sum for each section, but such block sums were but the result of detailed calculations made by us from the profiles taken from station to station by each 100 feet, as there indicated, and thus establishing, before fixing the prices
1300 in our tenders, both the real and probable amount of work on the whole of the four sections; the scales of prices in the schedule annexed to our tenders were only the

distribution of the block sums of our contracts, taking the approximate quantities in the bill of works furnished by the Commissioners, which we found in excess of the real quantities on which our prices were actually based, assuming that the quantities given in the bill of works would be those taken to establish the monthly payments, as each part of the work was completed from station to station.

The contract refers to plans and profiles in the possession of the Commissioners which have never been signed by us, and the nature of the contract gives such latitude and powers to the Engineers, that we have been literally subject to the arbitrary exercise of
 1310 these powers *without redress*; to this part of our case we beg to call your particular attention.

Those who had the superintendence and *direction of the works for the Commissioners*, have persistently, from the first, done all in their power to oppress and discourage us, so as to force us to abandon our contracts. To this end two means were available:

1st. To take advantage of their power to make the execution of the works as costly as possible, and to augment the quantities.

2nd. To take advantage of the manner in which our prices in the schedule were calculated by returning only the quantities really executed, and not according to the scale in the bill of works of the Commissioners, which give larger quantities from station to station,
 1320 thus diminishing our monthly estimates, which, we contend, should have embraced *all the quantities given in the Bill of Works* from station to station when that part of the work was completed.

Both these means the District Engineer freely used and abused. From the commencement of the works it was clear that, not satisfied with our performing all necessary works in a solid and substantial manner, we were to be obliged to execute work altogether unnecessary, others with an extravagance of cost and finish not at all requisite; and in some cases the quantities of work returned from month to month were actually even less than those really performed, putting aside what was specified in the bills of works from station to station where the works were actually performed.

1330 Some of the treatment we received was precisely as detrimental to us as contractors, as what Mr. Fleming had foreseen might be the case, and stated so clearly in his letter of 27th January, 1869, to the Hon. John A. Macdonald. See page 17, printed correspondence, thus:—

“But if the objection to the system is founded upon the possibility of fraud or corruption in the Engineering Staff, what is to be said of the case of an Engineer invested with
 “unlimited power of alteration in contracts to be performed for a fixed sum, when, without
 “any obvious departure from the line of duty, he might ease or burden a contractor
 “almost at pleasure, and that without taking anybody into his counsels, or being subject
 “to detection or control? If the danger of dishonesty be proportioned to the opportunity,
 1340 “it cannot be doubted that this system opens a door for fraud which does not and cannot
 “exist in the one recommended by me.”

At each monthly payment we found the sums expended beyond the amounts received were growing larger and larger, but we did not make any complaint or application until October, 1870, hoping always that a change in our treatment would take place, seeing how

powerfully we were supported financially; but at that time it was evident that the system followed would be continued, and *that no organization, however strong, could resist it*.

We were then \$119,000 in advance, and on the 17th October we made an official complaint to the Commissioners. This complaint had no other effect but to enrage against us the District Engineer, and, if possible, to increase his ill-will towards us, and he persisted
1350 in his oppressions more than ever. In proof of which, we refer you to Mr. Smith's report of 30th December, 1870.

The spirit of this Report must have shown the Commissioners that our complaints were well founded; a simple fact will suffice. Mr. Smith says that with our organization it would take twenty years to execute the works on our sections, whilst, with the same organization, all has been completed in three working seasons; and, as regards masonry, the item so forcibly dwelt upon by Mr. Smith, there remained at the end of the second working season, according to the Section Engineer's Returns, the following quantities to be done:—

	18,200 yards	Section No. 3.	238 yards.	1.31 per cent.
1360	13,594	" 6.	3,300 "	25.00 "
	13,000	" 9.	41 "	0.11 "
	16,100	" 15.	1,243 "	7.70 "

In February, 1871, the Commissioners sent Mr. Schreiber to the sections to make an *enquete*. It was not possible at that season to measure accurately the quantity of work done by us; but as to our organization, quarries opened and being vigorously worked, enough was visible to convince him of the falseness of Mr. Smith's assertions on the subject. In the month of May Mr. Schreiber returned to measure the quantities of works executed. We do not know what report Mr. Schreiber made from these two visits, having only received the measurements of two sections; but at the end of his second visit, we re-

ceived, in June, 1871, a letter from the Commissioners, complaining that our works were
1370 not advancing rapidly enough. In the same letter they announced to us they were disposed to augment the prices stated in the schedule, forming part of the contracts, *thus modifying the contracts, if not entirely departing from them*. In the same month they ordered the payment to us of \$40,000, on account of the sum expended in excess of what we had received in the Engineer's estimates; and they reserved to themselves the decision, after visiting the Sections, whether we should continue the works, *and on what conditions*. The Commissioners made their visit in July, 1871, found that we were perfectly well organized and proceeding to their satisfaction, they decided that we were to go on with the execution of the works, *but without determining any conditions*. By an Order in Council of 27th July,
1380 1871, the Government decided and ordered a further *modification of the contracts*.

Seeing, however, that these modifications made by the Commissioners and the Government in no wise changed the conduct of the Engineers, and its consequent results, we addressed, on 22nd September, 1871, the Commissioners again on the subject, showing them the excess of our expenditure in the four sections had reached over \$100,000 (four hundred thousand dollars.)

The Commissioners, recognizing the justice of our application, made an advance on account over and above the usual monthly warrants of \$100,000. After paying the \$100,000 the Commissioners ordered a fresh bill of works to be made, putting as their extinction

of the sum required for completion, of the prices in conformity to the Order in Council of
 1390 27th July, 1871. For our own satisfaction and that of our sureties we had made also a bill of works of what was remaining to be executed on the 1st of September, 1871.

The difference in our bill of works, compared with that made by the Engineer, was so great that we were permitted to compare and check over the two with Mr. Fleming, with the object of discovering where the discrepancy existed. On going over one of the sections we pointed out the stations where the principal differences existed, and proved there were grave errors made by the Engineers. Then followed our letter or application to the Commissioners of the 12th January, 1872, from which we received a further sum of \$67,600.

It is hardly necessary to tell you that, after this, things did not go more smoothly
 1400 between Mr. Smith and ourselves, and seeing the increasing difficulties of continuing the works under our own management, while having also to attend to constantly recurring *enquêtes*, absorbing too much of our time, we addressed to the Minister of Public Works, on the 22nd March, 1872, a memorandum, giving a *résumé* of our troubles and difficulties, and bringing to his notice the damages that were being caused by the unjust treatment towards us of the Engineer. We did not receive any official reply to this document; but, after its receipt, Mr. Smith, the District Engineer, was removed, and Mr. Fitzgerald was instructed to make an *enquête* to show whether the Engineer or ourselves were the nearest in our estimation of the work remaining to be done.

Mr. Fitzgerald made the *enquête* in question, with all the care and precision possible,
 1410 and made an official report thereon, dated 17th August, 1872. During this investigation we received a further sum of \$50,000, and after its conclusion another payment of \$80,000, both these amounts being outside of and apart from the ordinary monthly warrants.

These two important questions, which he had asked a settlement of in our memorandum to the late Commissioner of Public Works, were thus adjusted by the Government in as satisfactory a manner as possible.

But neither the Government, the Commissioners, nor the Engineer-in-Chief could control the Engineer who had the direction of the works, who alone had the power at will to diminish or augment the quantity of works; or, without augmenting the quantity, to increase materially the cost by the manner in which they compelled us to execute them;
 1420 and this has been done on our sections with all the ingenuity and skill experience had enabled them to exercise; and yet, in the face of all this, and in addition, the great advance on wages averaging 40 per cent., and the increased cost of materials, the sum total expended by us on the four sections does not much exceed the maximum estimate of the Engineer-in-Chief, which, it appears to us, the Engineers on the sections seemed always to keep in view, determined to force the actual outlay up to it.

It is not necessary to say that since the modification of the contracts the monthly estimates of the Engineers were set aside and not acted on by the Government as correct, the *enquêtes* from the commencement having been sufficient to establish that the Government, being convinced that the only means of giving us what we were entitled to was to
 1430 base their payments upon the settlement of our actual expenditure, leaving for final settlement the questions of extras, damages suffered in all ways, and expenses and compensation for management.

In proof of this position, we have, since the modification of the contracts, on five different occasions, received payments amounting in the total to \$337,000, as per documents annexed over and above the sum received on the monthly estimates of the Engineers, which were nevertheless certified as correct.

The working season of 1872 having terminated in this way, it remained to come to a settlement of our accounts with the Commissioners.

The works were not entirely finished, but we could not wait their completion on account
 1440 of the very large sums we were still in advance beyond the payments received. In consequence, we prepared accounts of what was due to us up to the 1st December, 1872. These were made up in detail with the utmost possible correctness and care, which took a great deal of time and were therefore not sent to the Commissioners until 3rd February, 1873, the principle being the same as on previous occasions; these to show and establish, but more minutely, the amounts actually expended on the works, and on which principle we had received the various previous payments outside of and beyond the monthly estimates of the Engineers. We annex only the *resumé* of these described accounts.

To our great surprise, instead of receiving and acting on these accounts as on previous statements, the Commissioners returned them to us, saying that they had nothing to do
 1450 with what the costs of the works amounted to.

They suggested to us verbally, at the same time, to put our claims in the shape of a bill of extras, which suggestion we adopted, being led to expect a large payment would be made to us on such a bill of extras; it was submitted to the Commissioners 24th May, 1873. The preparation of this bill of extras took nearly two months, during which time our works were going on, but we were receiving very little from the Commissioners. When the account was presented we were then nearly three months in arrears with our workmen's wages. It was therefore necessary to obtain payment immediately from the Commissioners; but, instead, they referred the matter to the Engineers on the sections for verification, and knowing that we could not wait for this to be done on account of our position
 1460 with our workmen, as a strike would have been the inevitable result, with a general disturbance and stoppage of all that was organized and progressing well, we proposed to the Commissioners to order Mr. Stephenson, their paymaster, who was then in New Brunswick, to pay the workmen immediately on the four sections, pending the decision of the questions between us. The Commissioners could only act in this way by conforming to the law, which made it necessary for them to assume direction of the works, in order to have the power of paying the workmen.

This proposition was accepted by us as being the only one possible at the time, and the works have been carried on by them since the 7th June, last, but under our surveillance, and in this way they have been completed without any change in our organization, and
 1470 without any disturbance or loss of time.

From the foregoing we claim that since the letter of the 10th June, 1871, the original contracts have been modified and departed from altogether, a course caused, we assume, by the report of Mr. Schreiber, and without receiving this letter, we should not have been capable of continuing the works, as our sureties would have refused to make us further advances. The conduct of the Government and the Commissioners towards us since that time has been constantly outside of, and apart from the original contracts. To hold us now

to these contracts in the settlement of our claims, would be to suppose that the Government and Commissioners had acted towards us so as to lead us on to obtain the sum required to perform the works on these sections, to the end that heavy losses should be suffered by
 1480 our sureties and the banks who have assisted them, as they must have well known the impossibility of its being otherwise, if they were to restrict the total payments to us to the amount of the original contracts; and we cannot allow ourselves for a moment to entertain such an imputation on the good faith and intentions of either the Government or the Commissioners.

We submit that we have fully demonstrated our right, both in law and equity, to claim payments from the Government.

1st. Of the balance yet unpaid to us of the cost of the works on these four sections up to the time the Commissioners assumed the monthly payments, including the interest we have been obliged to pay to obtain the money advanced as per annexed account.

1490 2nd. Of the usual percentage allowed to contractors for the management and direction of such works, none of our personal or travelling expenses, which have been very heavy, being included in the account of the costs of construction, nor yet the charges for Clerk's office, &c., &c., in Quebec, without which, the supplies, plant, and financial management could not have been arranged and maintained in the satisfactory way they were.

3rd. Of the price of the rolling stock, materials, &c., &c., necessary to complete the works on the sections which were transferred over to the Commissioners when they took charge of the works, the transfers and schedules of which are annexed.

The three foregoing claims comprise everything in the way of extras or otherwise, that we ask payment of, as we have no intention of demanding anything beyond what we
 1500 conceive to be really, legally, and equitably due to us. To this end we have taken the simplest and most straightforward way of submitting our actual disbursements on the works up to the 7th June last, details of which are ready for your inspection, or that of any one else you may appoint, with all the receipts and vouchers in proof. These accounts have been made up with the greatest possible care, and their accuracy tested by the oath of the bookkeepers on each section.

Before closing, we beg respectfully to ask, in view of the large advances our sureties are at the present under, and the continued accumulation of interest, that some immediate action be taken to grant them relief, either by a payment to them on account, pending an investigation in the spring, or by commencement of an investigation without delay.

1510 We have the honor to be, Sir,

Your most obedient servants,

(Signed,) F. X. BERLINGUET & CO.

" J. B. BERTRAND & CO.

To the Hon. ALEXANDER MACKENZIE,

Commissioner Public Works,

Ottawa.

[765.]

INTERCOLONIAL RAILWAY,
COMMISSIONERS' OFFICE,
OTTAWA, April 4th, 1874.

1520 MY DEAR SIR,—I am directed to inform you that you will please receive from the Engineers whose services are dispensed with on the St. Lawrence and Restigouche Districts, all books, plans, profiles and other property that may be in their possession belonging to the Intercolonial Railway, and hold the same, subject to the instructions of Mr. Collingwood Schreiber.

Yours very truly,
(Signed,) RALPH JONES,
Secretary.

W. H. STEVENSON, Esq.,
Paymaster.

DALHOUSIE, 7th April, 1874.

[766.]
1530 DEAR SIR,—Herewith I send you the certificates for work done on the Restigouche District up to the end of last month. I believe Mr. Schreiber has got copies of all these, except that for No. 6, from the different divisions. The certificate for No. 6 I made up myself, as the stone and fence timber have been delivered under contracts which I made for them by virtue of the appointment which I received from the Commissioners in July last for finishing the works.

I have never yet received any official information about Mr. Schreiber's appointment and the changes consequent thereon, but four more of the staff on the Metapedia sections have been dismissed, and a young man, Sinclair, who, according to the Commissioners' report of 1873, was rodman on Section 22, has been appointed under me, by Mr. Schreiber, to the sole charge of the works on 3, 6, 9 and 15, and he has come up here to assume his

1540 duties. * * * * *

I remain, dear Sir,
Yours very sincerely,
(Signed,) LEONARD G. BELL.

SANDFORD FLEMING, Esq.

[767.]

INTERCOLONIAL RAILWAY,
PAYMASTER'S OFFICE, ST. LAWRENCE DISTRICT,
RIMOUSKI, 14th July, 1875.

DEAR SIR,—I send you by first mail several inventories of the plant upon Sections 3, 6, 15 & 9 and 15; also some correspondence in reference to a claim by F. X. Berlinguet & Co., for cedar rails.

Yours very truly,
W. H. STEVENSON.

RALPH JONES, Esq.,
Secretary Intercolonial Railway,
Ottawa.

[768.]

QUEBEC, 12th October, 1875.

DEAR SIR,—In relation to the claims against the Dominion Government, arising from the works done on Sections 3, 6, 9 and 15 of the Intercolonial Railway, a settlement of
 1560 which I am pressing, as one of the sureties, in the interests of all, I have stated to the Honorable Mr. Mackenzie that on several occasions when the works were in progress, your conversations with me on the subject were to the effect that I need not feel so anxious as I was evidently doing; the Government could not expect or allow the road to be built at the expense of private individuals, but that means would be found to meet the difficulties we were encountering by disbursing such large sums over the monthly payments received; and doubtless you had good grounds for doing so, from what had passed between you and the Honorable Mr. Langevin, the then Minister of Public Works, and other members of the Cabinet.

I would recall, also, a particular conversation on the steamer "Lady Head," on her
 1570 passage from Newcastle to Bathurst, when you told me you were glad to say that estimate at increased rates of from 20 to 25 per cent. had been sanctioned. I replied how thankful I felt to hear it, but remarked naturally that by the payments of these increased rates the bulk sum of the contracts would be exhausted before the works were completed. You answered me that you considered the fresh rates established, to be a new arrangement, and altogether apart from the original contracts. This you have already verbally confirmed in the Honorable Mr. Mackenzie's presence, he having sent for you during my interview with him, when I made that statement.

I beg also to refer you to your letter to the Commissioners dated "26th January, 1872," which had reference only to Sections 3, 6, 9 and 15—"Pages 33 and 34 report of the
 1580 Standing Committee of Public Accounts in reference to Section 16 Intercolonial Railway, 1871."

You clearly point out in it that by the rates of payment being made under Order in Council, dated July 27th, the bulk sum of the contracts would be exceeded \$113,054.75, and that naturally a further increase of 20 per cent. would add that much more to the increase over the contract sums. You asked for further instructions, and the result was the sanctioning and payment of additional sums.

The whole of the letter above referred to corroborates the position I take, viz., that the original contracts (impossible ones as they were from the first) had been clearly departed from, and that a refusal to recognize our claims and hold us to the bulk sum of
 1590 the original contracts would be a breach of good faith contrary to common sense, or to any fair and equitable view of the matter, whilst to the sureties it would be a peculiar and crushing hardship.

Asking your reply to the above, which I trust to receive at your earliest convenience, embracing all you know of the facts I have stated,

I am, dear Sir,

Yours truly,

(Signed,) JOHN S. FRY.

SANDFORD FLEMING, Esq.,
 Ottawa.

1600 [769.]

INTERCOLONIAL RAILWAY,
OFFICE OF THE CHIEF ENGINEER,
OTTAWA, 30th October, 1875.

DEAR SIR,---I have been much away from home during the last week or two, and hence your letter of the 12th has remained unanswered until now.

I can hardly be expected to remember all that may have been said in the many conversations we have had since work began on the Intercolonial Railway.

I feel satisfied that I have frequently expressed great regret that you should have been led into a matter which has been the source of so much anxiety to you, and I may have said that the system by which public works were built, to any extent, with private means, must be a bad one; and, at the same time, expressed a strong hope that in your case the losses might not prove so serious as you supposed. I could not, however, have done or said much more than this, as I had no authority whatever to commit the Government to the payment of anything; certainly not by any informal expressions such as I allude to.

With regard to the conversation which you say took place on the steamer "Lady Head," I can readily understand that such a conversation did take place, as I was frequently urged by the Commissioners, contractors and others, to certify larger amounts than I considered due; that I as frequently resisted all the pressure that was brought to bear on me on such and every occasion. The ground which I took was that no one had any right to interfere or influence me in any way with respect to my own certificates. The Commissioners went so far as to pass resolutions directing me to increase my certificates, but I would not act on these resolutions; I demanded Orders in Council as well. I invariably acted on these Orders in Council, considering them in the light of new contracts, as far as making out my certificates was concerned. My official correspondence will show all this, and I have no doubt at all that I said to you, and to other contractors, that I considered the increased rates established from time to time by Orders in Council, as strong evidence that the Government was anxious to assist contractors to finish their work with as little loss as possible.

I think these remarks cover all the points in your letter.

1630

Yours very truly.

(Signed,) SANDFORD FLEMING.

JOHN S. FRY,
Quebec.

INTERCOLONIAL RAILWAY. M.

BILL OF WORKS AND SERVICES.

Contract No. 9.

Extending from the Easterly end of Contract No. 6 towards Bathurst, 21 miles in length.

This Bill is an Abstract of all the information in the possession of the Commissioners with regard to the quantities of work to be executed.

The quantities herein given are ascertained from the best data obtained: they are, as far as known, (approximately) accurate; but at the same time they are not warranted as accurate, and no claim of any kind will be allowed, though they may prove to be inaccurate.

The quantities of excavation are for the most part ascertained from *Cross Sections*: the proportion of *Rock* excavation is estimated from information furnished by test-pits dug at intervals along the line of Railway; the information thus ascertained, and the nature of the soil to be excavated, will generally be found written on the Profiles; but the accuracy of this information, is not guaranteed—Contractors must satisfy themselves on this as well as on every point, as no addition or deduction will be made in the event of any excavation, or any other work, turning out more than what may be represented or supposed.

A Schedule of Cuttings and Embankments is furnished, showing the approximate quantities in each, and giving an estimate of the probable proportions of earth and rock, which will require to be executed on the Contract. The Excavations are calculated *net measurement*, and the Contractor will observe that a percentage allowance is added to Embankments for waste, subsidence, wash beyond slope lines, &c.

A Schedule of Structures proposed for the passage of streams and general surface drainage across the line of Railway, is also furnished. The Structures proposed, are, from all the information obtained, believed to be ample, but should circumstances require any change in the number, position, waterway or dimensions, the contract will provide that all changes deemed necessary shall be made by the Contractor without any extra charge. This Schedule gives the probable quantities in the Structures now proposed and the data upon which these quantities are ascertained; much, however, depends on the foundations, and as accurate information on this point can only be had during the progress of the work, the Contractor is required to make all allowances in the following Bill, which he may deem necessary. The prices put in the Schedule to the Tenders will be applied to this Bill by the Commissioners to enable them to judge how the Tenders are made up.

Approximate Quantities.

DESCRIPTION OF WORK OR SERVICE.

270	Acres <i>Clearing</i> (generally 132 feet wide, or one rod beyond fencing)
13	Acres <i>Close Cutting</i> .
26	Acres <i>Grubbing</i>
227500	Lineal feet <i>Fencing</i>

Approximative Quantities	DESCRIPTION OF WORK OR SERVICE.
82000	Cubic yards <i>Rock Excavation.</i>
60000	Cubic yards <i>Borrowing</i> between Stations 580 and 790.
42200	Cubic yards <i>Earth Excavation.</i>
5400	Lineal feet <i>Under-Drains.</i>
800	Cubic yards <i>Rip Rap.</i>
300	Cubic yards <i>Concrete.</i>
6300	Cubic yards <i>1st Class Masonry.</i>
6700	Cubic yards <i>2nd Class Masonry.</i>
880	Cubic yards <i>Paving.</i>

In addition to the quantities herein given the attention of Contractors is drawn to other services mentioned underneath for which all allowances must be embraced in the Tenders.

Foundations—Embracing all excavation and Concrete, &c., (see Schedules), not included in the above, and all Timber, Plank, Piles, Draining, Pumping, Blasting, Levelling, and everything else that may be found necessary.

Bridge Superstructure.—Including three Howe Truss Timber Bridges complete, with three coats anti-corrosive paint, and properly protected, viz :

Two of 80 feet clear spans,=160 feet lineal.

One of 60 feet clear span,=60 feet lineal.

Including also Timber in Stringers and Wall Plates in 23 Beam Culverts, ranging from 6 to 20 feet clear spans, and all Bolts, Rods, Spikes, and Plates required. Total. 213 ft. clear, and everything else required to complete this service.

Road Crossings and Diversions.—Including :

25 Public Road Crossings, with Cattle Guards, Stringers, and Sign Beards, complete.

Also, all Farm Crossings, with suitable Gates, Hinges, and Fastenings, embracing, 14 single Crossings, and 36 double Crossings.

Also, all Excavation in Approaches, not included in Common Excavation, and everything else required to complete all Road Crossings and Road Diversions.

Omissions and Contingencies.—Allowance should also be made for the following, viz :—

For any errors in measurements or calculations, or deficiencies in quantities. For all alterations considered necessary in structures that may be found inadequate in waterway or strength. For removing all buildings and other obstructions on the line of Railway. For re-building fences destroyed by fire, and for repairing all injuries done before the completion of the Contract. For making good all temporary damage to owners or occupants of land, through loss of or injury to crops or cattle, through trespass of workmen, or through any other cause. For making compensation for all damage done to property or persons through operations or accidents of any kind. For providing and maintaining proper tools, plant and materials for carrying on the works. For repointing or rebuilding any masonry injured through any cause, or not according to specification. For completing, upholding and maintaining the whole of the works until their final acceptance and the close of the Contract, and for making good all damages which may result from floods, frost, fire, or from any kind of accident. Generally for all omissions, and to cover all possible risks and contingencies.

Bathurst--21 miles.

M. 1.

Schedulum Culverts, Bridges and Viaducts.

AT STATION.	Description of Structure	REMARKS.
11+50	Arch Culvert.....	9 yds. Concrete probably required.
53	Box Culvert	
80+50	Arch Culvert	s. Concrete required.
96	Double Box Culvert	
109	Double Box Culvert	
143+50	Arch Culvert	s. Concrete required.
183	Double Box Culvert	
201	Beam Culvert.....	lation stratum in all probability will prove to be rock in most
211+30	Beam Culvert.....	on this Contract.
222+30	Box Culvert	
226	Howe Truss Bridge	
236+25	Box Culvert	
272+50	Beam Culvert.....	
291+50	Double Box Culvert	
300	Box Culvert	
317	Beam Culvert.....	
342	Box Culvert	
352+50	Beam Culvert.....	
364+80	Beam Culvert.....	
381	Box Culvert	
396+50	Beam Culvert	
411	Box Culvert.....	
436	Beam Culvert	
464	Beam Culvert.....	
473+50	Box Culvert	
503+20	Box Culvert	
547+50	Arch Culvert	s. Concrete required.
572	Beam Culvert.....	
587+25	Box Culvert.....	
590+50	Arch Culvert	s. Concrete required.
610	Box Culvert	
635+50	Box Culvert.....	
655+30	Beam Culvert.....	
661+80	Box Culvert.....	
678+50	Beam Culvert.....	
698+50	Beam Culvert	
707+50	Beam Culvert	
726	Box Culverts.....	
736	Box Culverts.....	
761	Bridge (Howe Truss)	
780	Beam Culvert.....	
787	Arch Culvert	s. Concrete required.
806+50	Arch Culvert	s. Concrete required.
807	Beam Culvert.....	

Carried fort

INTERCOLONIAL

APPENDIX

CONTRACT No. 9.—From the Easterly end of C

Schedule of proposed Structures for the passage of Streams embro

AT STATION.	Description of Structure and reference to General Drawings.	Height from	Clear Opening.	ARCH OR BOX CULVERTS.		PRO
		Line of		Size.	Length of Arch or Box.	Masonry.
		Paving to For- mation Level.				
		Feet.	Feet.	Feet.	Feet.	Cubic Yard.
11+50	Arch Culvert.....Special Drawing	62.5		20 ft. arch.	110	2740
53	Box Culvert .....Sheet No. 3	9.0		4 × 2½	30	49
80+50	Arch Culvert .....Sheet No. 8	19.0		8 ft. arch.	38	365
96	Double Box Culvert .....Sheet No. 4	13.0		4 × 2½	43	104
109	Double Box Culvert .....Sheet No. 4	9.0		4 × 2½	30	76
143+50	Arch Culvert .....Sheet No. 8	21.0		8 ft. arch.	45	403
183	Double Box Culvert .....Sheet No. 4	12.0		4 × 2½	40	98
201	Beam Culvert.....Sheet No. 4	3.5	6.0			40
211+30	Beam Culvert.....Sheet No. 4	3.0	6.0			35
222+30	Box Culvert .....Sheet No. 3	39.0		4 × 2½	126	182
2+6	Howe Truss Bridge ..Sheets Nos. 18 & 19	52.0	80 ft. span.			1300
236+25	Box Culvert .....Sheet No. 3	16.0		4 × 2½	53	82
272+50	Beam Culvert.....Sheet No. 4	5.0	6.0			40
291+50	Double Box Culvert.....Sheet No. 4	7.0		4 × 2½	24	62
300	Box Culvert .....Sheet No. 3	6.0		4 × 2½	21	38
317	Beam Culvert.....Sheet No. 4	3.0	6.0			25
342	Box Culvert .....Sheet No. 3	6.0		2½ × 2½	25	34
352+50	Beam Culvert.....Sheet No. 4	5.0	6.0			40
364+80	Beam Culvert.....Sheet No. 4	6.0	10.0			60
381	Box Culvert .....Sheet No. 3	9.0		4 × 2½	30	45
396+50	Beam Culvert .....Sheet No. 11	12.0	8.0			190
411	Box Culvert .....Sheet No. 3	10.0		4 × 2½	24	56
436	Beam Culvert .....Sheet No. 4	3.0	6.0			40
464	Beam Culvert.....Sheet No. 4	5.0	10.0			54
473+50	Box Culvert .....Sheet No. 3	11.0		4 × 2½	37	60
503+20	Box Culvert .....Sheet No. 3	8.0		4 × 2½	37	46
547+50	Arch Culvert .....Sheet No. 7	15.5		6 ft. arch.	37	188
572	Beam Culvert.....Sheet No. 11	12.5	8.0			190
587+25	Box Culvert.....Sheet No. 3	5.0		2½ × 2½	22	31
590+50	Arch Culvert .....Sheet No. 9	26.0		10 ft. arch.	55	491
610	Box Culvert .....Sheet No. 3	9.0		4 × 2½	30	50
635+50	Box Culvert.....Sheet No. 3	17.0		4 × 2½	56	81
655+30	Beam Culvert.....Sheet No. 4	6.0	6.0			60
661+80	Box Culvert.....Sheet No. 3	11.0		4 × 2½	87	60
678+50	Beam Culvert.....Sheet No. 4	3.0	10.0			35
698+50	Beam Culvert.....Sheet No. 11	10.0	10.0			135
707+50	Beam Culvert .....Sheet No. 11	12.0	8.0			190
726	Box Culverts.....Sheet No. 3	8.0		4 × 2½	27	44
736	Box Culverts.....Sheet No. 3	6.0		4 × 2½	25	33
761	Bridge (Howe Truss).....Sheets 18 & 19		60 ft. span.			1100
780	Beam Culvert.....Sheet No. 11	15.0	20.0			300
787	Arch Culvert .....Sheet No. 7	20.0		6 ft. arch.	50	232
806+50	Arch Culvert .....Sheet No. 10	20.0		12 ft. arch.	82	531
807	Beam Culvert.....Sheet No. 11	13.0	20.0			220

Carried forward

10245

COLONIAL RAILWAY.

APPENDIX A.

erly end of Contract No. 6, towards Bathurst—21 miles.

M. 1.

Streams embracing Arch, Box and Beam Culverts, Bridges and Viaducts.

CULVERTS.	PROBABLE QUANTITIES.			REMARKS.
	Masonry.	Paving.	Excavation in Foundation.	
Length of Arch or Box.				
Feet.	Cubic Yards.	Cubic Yards.	Cubic Yards.	
110	2740	120	2200	About 200 yds. Concrete probably required.
30	49	9	36	
38	365	19	232	A few yds. Concrete required.
43	104	18	76	
30	76	16	55	
45	403	20	256	A few yds. Concrete required.
40	98	17	70	
	40	12	18	The foundation stratum in all probability will prove to be rock in most cases on this Contract.
	35	12	16	
126	182	18	144	
	1300		968	
53	82	11	61	
	40	12	25	
24	62	11	42	
21	38	8	25	
	25	12	16	
25	34	7	24	
	40	12	25	
	60	12	60	
30	45	9	32	
	190	13	40	
24	56	9	38	
	40	12	25	
	54	20	51	
37	60	9	46	
37	46	8	32	
37	188	12	173	A few yds. Concrete required.
	190	13	40	
22	31	7	24	
55	491	31	314	A few yds. Concrete required.
30	50	9	35	
56	81	11	64	
	60	12	48	
37	60	10	43	
	35	10	20	
	135	24	90	
	190	13	134	
27	44	8	31	
25	33	7	24	
	1100		620	
	300	15	400	
50	232	14	211	A few yds. Concrete required.
32	531	33	281	A few yds. Concrete required.
	220	15	400	
.....	10245	670	7565	

CONurst---21 miles.

M. 2.

Schedule of p, Culverts, Bridges and Viaducts.

AT STATION	Description of Structure and General Drawings	REMARKS.
------------	--	----------

Brought forward.....

825 - 30	Box Culvert.....	
835	Box Culvert.....	
863 + 80	Beam Culvert.....	
874 - 50	Box Culvert.....	
890	Beam Culvert.....	
900 - 20	Box Culvert.....	
910 + 50	Double Box Culvert.....	
920 + 50	Box Culvert.....	
934	Box Culvert.....	
962 - 40	Beam Culvert.....	
980	Box Culvert.....	
994 - 30	Beam Culvert.....	
1001	Bridge (Howe Truss).....	Sl
1038	Box Culvert.....	
1063	Double Box Culvert.....	
1074 - 30	Beam Culvert.....	
1083 - 60	Beam Culvert.....	
1090 - 60	Box Culvert.....	
1102 - 20	Beam Culvert.....	

rds.

APPENDIX

CONTRACT No 9.--From the Easterly end

Schedule of proposed Structures for the passage of Stream

AT STATION.	Description of Structure and reference to General Drawings.	Height from	Clear Opening.	ARCH OR BOX CULVERTS	
		Line of Paving to Formation Level.		Size.	Length of Arch or Box
		Feet.	Feet.	Feet.	Feet.
	<i>Brought forward.....</i>				
825+80	Box Culvert.....Sheet No. 3	7.0		4×2½	24
835	Box Culvert.....Sheet No. 3	9.0		4×2½	30
863+80	Beam Culvert.....Sheet No. 11	12.0	10.0		
874+50	Box Culvert.....Sheet No. 3	7.0		4×2½	24
890	Beam Culvert.....Sheet No. 4	12.0	10.0		
900+20	Box Culvert.....Sheet No. 3	7.0		4×2½	24
910+50	Double Box Culvert.....Sheet No. 4	8.0		4×2½	27
920+50	Box Culvert.....Sheet No. 3	7.0		4×2½	24
934	Box Culvert.....Sheet No. 3	8.0		4×2½	27
962×40	Beam Culvert.....Sheet No. 4	5.0	10.0		
980	Box Culvert.....Sheet No. 3	7.0		4×2½	24
994×30	Beam Culvert.....Sheet No. 11	15.0	12.0		
1001	Bridge (Howe Truss).....Sheets 18 & 19		80 ft. span.		
1038	Box Culvert.....Sheet No. 3	6.0		4×2½	21
1063	Double Box Culvert.....Sheet No. 4	11.0		4×2½	27
1074×30	Beam Culvert.....Sheet No. 11	7.0	8.0		
1083×60	Beam Culvert.....Sheet No. 11	5.0	8.0		
1090×60	Box Culvert.....Sheet No. 3	6.0		4×2½	21
1102×20	Beam Culvert.....Sheet No 11	10.0	8.0		

Totals.....

A1

Say Total First Class Masonry

“ “ Second “ “

“ “ Paving

“ “ Concrete

“ “ Excavation in foundation, (probably over 4,000 cu. yds.)

Rip-Rap

APPENDIX A--Continued.

asterly end of Contract No. 6, towards Bathurst--21 miles.

M. 2.

age of Streams, embracing Arch, Box, and Beam Culverts, Bridges and Viaducts.

OR BOX CULVERTS.		PROBABLE QUANTITIES.			REMARKS.
ze.	Length of Arch or Box.	Masonry.	Paving.	Excavation in Foundation.	
et.	Feet.	Cubic Yards.	Cubic Yards.	Cubic Yards.	
.....	.....	10245	670	7565	
× 2½	24	40	8	28	
× 2½	30	48	8	35	
		190	14	148	
× 2½	24	40	8	35	
		190	14	28	
× 2½	24	41	8	48	
× 2½	27	70	12	49	
× 2½	24	40	8	28	
× 2½	27	44	8	31	
		60	21	60	
× 2½	24	40	8	28	
		300	17	175	
		1200		1090	
× 2½	21	37	8	25	
× 2½	27	83	13	40	
		90	18	70	
		54	16	46	
× 2½	21	37	8	25	
		135	9	115	
Totals.....		12984	876	9669	

ABSTRACT.

.....	9,300 Cubic Yards.
.....	6,700 "
.....	880 "
.....	300 "
n, (probably over 4,000 cubic yards of this will be rock).	10,000 "
.....	800 "

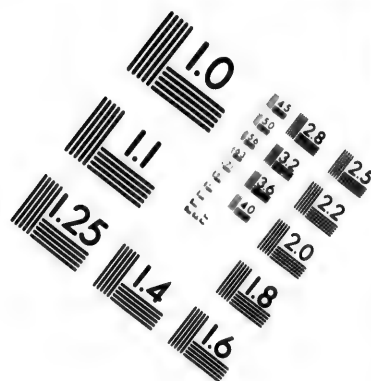
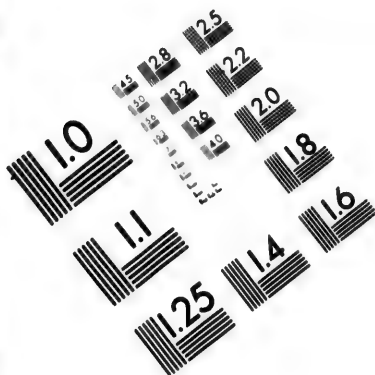
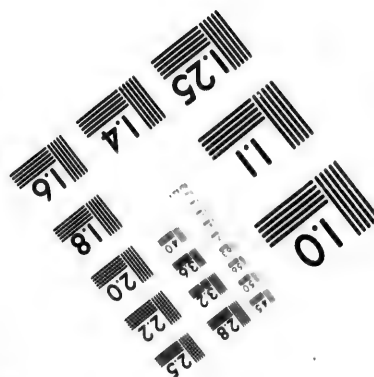
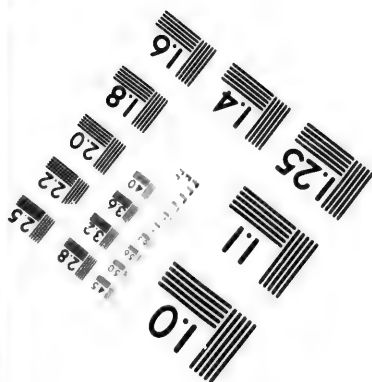
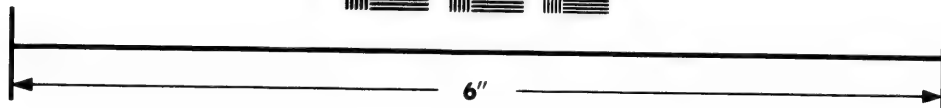
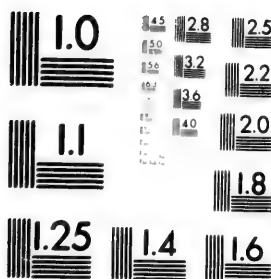


IMAGE EVALUATION TEST TARGET (MT-3)



**Photographic
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Corporation**

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WEBSTER, N.Y. 14580
(716) 872-4503

15 28 25
16 32 22
18 20

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CONTRACT (Bathurst, 21 miles.

M. 4.

List of Cuttings and Estimate of the probable proportions of Earth and Rockwork.

STATION.		EMBANKMENTS				Total Earth and Rockwork approximately estimated for completion of Grading to Formation Level, at specified widths and permanent slopes.	
From	To	18 feet wide: Slopes except where noted.	With per cent. added.	Spoil of Surplus Line Cuttings.	Balance Totals.	Rock.	Earth.
<i>Brought forward</i>		4			301105	71204	229901
651+35	652 60						
654+20	654 54						
657+35	659 20						
669+07	677+90				3761	3761	
678+97	680+65						
683+60	684+66						
703+47	705+56				7599	7599	
711+95	724+25						
743+75	744+60				16079	16079	
746	759+15	1					
761+88	775+80	15			12770	12770	
810+15	819		14046		26218	26218	
819	845+50		8788		14046		14046
845+50	847+58				8788		8788
850+60	852+30		288				
946+28	953+50		26683		288		288
963+70	967+46		2336		36683		36683
995+20	998		15190				
1004+50	1020		1847		19373		19373
1021	1025		3805		3805		3805
			36981		36981		36981
Totals.....		7			487496	187631	349865
N. B.—Where Embankments require Divisions, entrances and outlets to Contractors will be required.							30000
sides of cuttings, within an Road Crossings							35000
**Rock-borrowing between Sections ges, Culverts, and Cattle Guards.....						4000	7000
ments hauled a long distance.						141631	421865

,000 cubic yards.
,000 " "
,000 " "

CONTRACT No. 9. Extending from the Easterly

List of Cuttings and Embankments, shewing the Approximate quantities of Rock Excavations, which will be required.

STATION.		EXCAVATIONS.				
		Line Cuttings 22 feet wide, Slopes, $1\frac{1}{2}$ to 1, except where noted.			From Side Cuttings, &c., to make up Embankments.	
From	To	Rock.	Earth.	Total.	Rock.	Earth.
<i>Brought forward</i>		43919	82185	126104	27285	147716
651+35	652 60	187				
654+20	654 54	15				
657+35	659 20	268				
				465	3296	
669+07	677+90	3342				
678+97	680+65	112				
683+60	684+66	105				
				3559	4040	
703+47	705+56	767				
711+95	724+25	5370				
				6137	9942	
743+75	744+60	36				
746	759+15	11634				
				11670	1100	
761+88	775+80	13233				
				12233	13985	
810+15	819		6563			7483
819	845+50			6563		8788
845+50	847+58		134			
850+60	852+30		117			
				251		37
946+28	953+50		763			35920
				763		
963+70	967+46		492			
995+20	998		346			
				838		18535
1004+50	1020		2664			
				2664		1141
1021	1025		260			
				260		36721
Totals.....		77983	93524	171507	59648	256341

**

N. B.—Where Embankments require more material than the Line Cuttings at ordinary width supply Contractors will be required, under clause 17 of the Specifications to borrow material from the sides of cuttings, within an average haul of 800 feet.

**Rock-borrowing between Sections 580 and 790 will have to be resorted to, or material for Embankments hauled a long distance. The Slopes are calculated $1\frac{1}{2}$ to 1.

Say Total Rock Excavation.....
 " " Rock Borrowing (or other material hauled from
 " " Earth Excavation.....

AB

APPENDIX A.—Continued.

the Easterly End of Contract No. 6 towards Bathurst, 21 miles.

M. 4.

imate quantities in each, and giving an Estimate of the probable proportions of Earth and as, which will require to be executed on the contract.

Cuttings, &c., to up Embankments.			Balance	STATION.		EMBANKMENTS				Total Earth and Rockwork approximately estimated for completion of Grading to Formation Level, at speci- fied width: and permanent slopes.	
						Line Fillings, 18 feet wide: Slopes 1½ to 1, except where noted.		Spoil of Surplus Line Cuttings.	Balance		
Earth.	Totals.	From	To	Net.	With per cent. added.	Totals.	Rock.			Earth.	
85	147716	301105	Brought forward.....		278886		301105	71204	229901		
			642+75	651+35	2638						
			652+60	654+20	205						
			654+54	657+35	918						
96		3761	659+20	669+07	7256		3761	3761			
			677+90	678+97	90						
40		7599	680+65	683+40	253		7599	7599			
			684+66	703+47	11584						
42		16079	705+56	711+95	4495		16079	16079			
			724+25	743+75	5086						
			744+60	746	49						
00		12770	759+15	760+68	7635		12770	12770			
			761+50	761+88	621						
85		26218	775+80	790	25597		26218	26218			
	7483	14046	790	810+50	12769	14046	14046		14046		
	8788	8788	819	845+50	7989	8788	8788		8788		
			847+58	850+60	262	288					
	37	288	852+30	946+28	33348	26683	288		288		
35920		36683	953+58	963+70	2124	2386	36683		36683		
			967+46	995+20	13309	15190					
	18535	19373	998	1001+88	1679	1847	19373		19373		
	1141	3805	1002+50	1004+50	3459	3805	3805		3805		
	36721	36981	1025	1109	33619	36981	36981		36981		
48	256341	487496	Totals		454381		487496	187631	349865		
inary width supply, row material from the material for Embank-			Add for Catch Water Drains, Stream Diversions, entrances and outlets to Culverts, say.....						30000		
			Add for approaches to Public and Private Road Crossings						35000		
			" Excavations in foundations of Bridges, Culverts, and Cattle Guards.....					4000	7000		
									141631	421865	

ABSTRACT.

.....82,000 cubic yards.
material hauled from a distance to make up Embankments. 60,000 " "
.....422,000 " "

INTERCOLONIAL RAILWAY.

(DIVISION OF THE LINE) **IV.**

BILL OF WORKS AND SERVICES.

Contract No. 15.

Extending from Eastern end of Contract No 9 to Station 639, about half a mile east of the Nepisiguit River, a distance of about 12 $\frac{1}{2}$ miles.

This Bill is an Abstract of all the information in the possession of the Commissioners and the undersigned with regard to the quantities of work to be executed.

The quantities herein given are ascertained from the best data obtained; they are, as far as known, (approximately) accurate; but at the same time they are not warranted as accurate, and no claim of any kind will be allowed, though they may prove to be inaccurate.

The quantities of excavation are for the most part ascertained from *Cross Sections*; the proportion of *Rock* excavation is estimated from information furnished by test-pits dug at intervals along the line of Railway; the information thus ascertained, and the nature of the soil to be excavated, will generally be found written on the Profiles; but the accuracy of this information is not guaranteed—Contractors must satisfy themselves on this as well as on every point, as no addition or deduction will be made in the event of any excavation turning out more than, or different from what may be represented or supposed.

A Schedule of Cuttings and Embankments is furnished, showing the approximate quantities in each, and giving an estimate of the probable proportions of earth and rock, which will require to be executed on the Contract. The Excavations are calculated *net measurement*, and the Contractor will observe that a percentage allowance is added to Embankments for waste, subsidence, wash beyond slope lines, &c. The Contractor is required to make every allowance which he may deem necessary to cover the risk of any of the quantities of work being increased in execution.

A Schedule of Structures proposed for the passage of streams and general surface drainage across the line of Railway, is also furnished. The Structures proposed, are, from all the information obtained, believed to be the most suitable, but should circumstances require any change in the number, position, waterway or dimensions, the contract will provide that all changes shall be made by the Contractor without any extra charge. This Schedule gives the probable quantities in the Structures now proposed and the data upon which these quantities are ascertained; much, however, depends on additional information to be obtained with regard to the freshet discharge of streams as well as the nature of the foundations, and with respect to the latter accurate information can only be had during the progress of the work.

The prices put in the Schedule to the Tenders will be applied to this Bill by the Commissioners to enable them to judge how the Tenders are made up.

The Commissioners will consent to the substitution of Iron Cylinders for Box Culverts of masonry at certain points to be designated by the Engineer, such as those places where the inclination of the streams on hill-side ground renders the plan of construction shewn on Sheet No. 17 necessary. Wherever these Cylinders are employed they must be three feet in diameter in the clear, and weigh not less than 450 lbs. per lineal foot, they must be embedded throughout in concrete, and furnished with substantial wings and parapets of masonry at the ends—they must be made and laid according to the plans and directions of the Engineer, and such precautions taken as he may consider necessary to render the whole solid and permanent.

Where Iron Cylinders or other Structures are allowed or directed to be used in place of those mentioned in the Schedule of Structures, they will be paid for at the prices in the Schedule to the Tender, and a deduction will be made from the Contract sum of the total saving effected thereby, according to the reduction in total quantities calculated at the Schedule prices.

ENGINEER'S OFFICE,
Ottawa, 10th March, 1870.

ADDENDUM.

CONTRACT No. 15.

Division of the Line, **N.**

Correct Bill of Works, by including in *Road crossings and diversions*
THREE OVER BRIDGES, given in Schedule of Structures at Stations 337+50,
465+50 and 583+25, but omitted in the printed Bill.

SANDFORD FLEMING,
Chief Engineer.

In additi
services mer

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Approximative Quantities	DESCRIPTION OF WORK OR SERVICE
100	Aeres <i>Clearing</i> (generally 132 feet wide, or one rod beyond fencing.)
2	Aeres <i>Close Cutting</i> .
6	Aeres <i>Grubbing</i> .
122000	Lineal feet <i>Fencing</i> , as per specification.
6500	Lineal feet best <i>Snake fence</i> , with stake and rider.
7600	Cubic yards <i>Rock Excavation</i> .
607000	Cubic yards <i>Earth Excavation</i> .
15000	Lineal feet <i>Under-Drains</i> .
750	Cubic yards <i>Rip Rap</i> .
600	Cubic yards <i>Concrete</i> .
12100	Cubic yards <i>1st Class Masonry</i> .
4000	Cubic yards <i>2nd Class Masonry</i> .
700	Cubic yards <i>Paving</i> .

In addition to the quantities herein given the attention of Contractors is drawn to other services mentioned underneath for which all allowances must be embraced in the Tenders.

Foundations — Embracing all excavation and Concrete, &c. (see Schedules), not already included in the above, and all Timber, Plank Piles, Draining, Pumping, Blasting, Levelling, and everything else that may be found necessary.

Bridge Superstructure. — Including Howe Truss Timber Bridges complete, with three coats anti corrosive paint, and properly protected, viz :

11 spans of 100 feet each.

4 spans of 80 feet each.

1 span of 60 feet.

Including also 4 Beam Culverts, ranging from 6 to 8 feet clear spans, and all Bolts, Rods, Spikes, and Plates required, and everything else required to complete this service.

Road Crossings and Diversions. — Including :

7 Public Road Crossings, with Cattle Guards, Stringers, and Sign Boards, complete. Also, 38 single and 31 double Farm Crossings, with suitable Gates, Hinges, and Fastenings.

Also all Excavation in Approaches, not already included in Common Excavation, and everything else required to complete all Road Crossings and Road Diversions.

Omissions and Contingencies. — Allowance should also be made for the following, viz :—

For any errors in measurements or calculations, or deficiencies in quantities. For all works of protection required for slopes of Embankments and cuttings. For all alterations considered necessary in structures that may be found inadequate in waterway or strength. For removing all buildings and other obstructions on the line of Railway. For re-building fences destroyed by fire, and for repairing all injuries done before the completion of the Contract. For making good all temporary damage to owners or occupants of land, through loss of or injury to crops or cattle, through trespass of workmen, or through any other cause. For making compensation for all damage done to property or persons through operations or accidents of any kind. For providing and maintaining proper tools, plant and materials for carrying on the works. For repointing or rebuilding any masonry injured through any cause, or not according to specification. For completing, upholding and maintaining the whole of the works until their final acceptance at the close of the Contract, and for making good all damages which may result from floods, frost, fire, or from any kind of accident. Generally for all omissions, and to cover all possible risks and contingencies.

SANDFORD FLEMING,

Chief Engineer,

[Restigouche] [Division of the Line.] N.

CONTRACT No39, half-a-mile East of the Nipisiguit River,

Schedule of Cuttings and estimate of the probable proportions of Earth Contract.

STATION.		EMBANKMENTS.			Total Earth and Rockwork approximately estimated for completion of Grading to Formation Level, at specified widths and permanent slopes.			
		Lings, 18 feet wide; Slopes 1½ to 1.		Spoil of Surplus Line Cuttings.				
From	To		With per cent. added.		Balance Totals.	Rock.	Earth.	
16+51 44+04	30+63 46+71	4 6	6252 8906		15158		15158	
77	79+58	2	27876		27876		27876	
145+44	146+20	6	33315		33315	952	32363	
148+46 163+77 166+24	149+30 164+40 175	9 8 1	560 5091 111		5762	801	4961	
Slopes 2 to 1. } 175 197+90 232 242+30 244+10	187+85 208+69 241+39 243+78 248+95	5 5 7 7 6	38065 94066 591 140		132862	5396	127466	
	253+50 277+30 282 and 285	263+09 295+30 Lowering Public	6 4 16					22127 32344 204
	297+60 306+92 313+07	301+94 310+80 317+96	9 9 2					494 461 46719

[Restigouche District.]

INTERCOLON

CONTRACT No. 15. Extending from the Easterly End of
12¹/₁₀ m

Schedule of Cuttings and Embankments, shewing the approximate quantities of Earth and Rock Excavations, which will be required.

STATION.		EXCAVATIONS.				
		Line Cuttings Calculated 22 feet wide, Earth Slopes, 1 ¹ / ₂ to 1; Rock Slopes ¹ / ₂ to 1, except where noted.			From Side Cuttings, &c., to make up Embankments.	
From	To	Rock.	Earth.	Total.	Rock.	Earth.
16+51 44+04	30+63 46+71		4569 112	4681		10477
77	79+58		60	60		27816
145+44	146+20	952		952		32363
148+46 163+77 166+24	149+30 164+40 175	49 41 711	2012	2813		2949
175 197+90 232 242+30 244+10	187+85 208+69 241+39 243+78 248+95	5396	3524 91386 20596 1181 10779	132862		
253+50 277+30 282 and 285	263+09 295+30 Lowering Public Roads		28258 19028 3608	50894		3781
297+60 306+92 313+07 332+61	301+94 310+80 317+96 339+10		3205 645 1830 22298	27978		23361
342+90 350+56 352+57 361+39	347+33 351+55 352+97 371+65		4743 308 17 7123	12191		*3788
377+16 391+90 403+13 408 Farm Crossing.	381+26 398+39 409+85		1301 2266 5866 355	9788		*11048
417+20 422+30 Farm Crossing. 424+64 426 Farm Crossing. 429+60 Farm Crossing 437+39	423+35 434+09 437+47		6781 1383 8619 120 119 4	17026		17943
461+50 487+68	470 495+23		30197 12311	42508		
501+03 509+99	506+52 522+24		4691 4345	9036		
Carried Forward.....		7149	308640	310789	.....	133526

* To be barrowed by wide

TERCOLONIAL RAILWAY.

[Division of the Line.] N.

Easterly End of Contract No. 9 to Station 639, half-a-mile East of the Nipisiguit River,
12 $\frac{1}{10}$ miles in length.

*approximate quantities in each, and giving on Estimate of the probable proportions of Earth
utions, which will require to be executed on the Contract.*

Side Cuttings, &c., to make up Embankments.			Balance Totals.	STATION. From To		EMBANKMENTS.				Total Earth and Rockwork approximately estimated for completion of Grading to Formation Level, at speci- fied widths and permanent slopes.	
						Line Fillings, 18 feet wide; Slopes 1½ to 1.		Spoil of Surplus Line Cuttings.	Balance Totals.		
Rock.	Earth.				Net.	With per cent. added.					Rock.	Earth.
	10477	15158	0 30+63	16+51 44+04	5684 8096	6252 8906		15158		15158	
	27816	27876	46+71	77	25342	27876		27876		27876	
	32363	33315	79+58	145+44	30286	33315		33315	952	32363	
	2949	5762	146+09 148+98 164+40	148+46 163+77 166+24	509 4628 101	560 5091 111		5762	801	4961	
		132862	184+85 208+50 241+35 243+78	198+02 232+50 242+55 244+15	34605 85515 537 127	38065 94066 591 140		132862	5396	127466	
	3781	54675	248+95 263+09 295+30	253+69 278 297+60	20116 29404 186	22127 32344 204		54675		54675	
	23361	51339	301+94 310+80 317+96 339	306+92 313+07 332+61 343+10	449 419 42472 3332	494 461 46719 3665		51339		51339	
	*3788	15979	347+37 351+55 352+37 371+65	350+36 352+57 361+39 377+16	5259 91 5893 3283	5785 100 61+2 3612		15979		15979	
	*11048	20836	381+26 398+39 409+85	391+95 403+13 417+20	14909 592 3441	16400 651 3785		20836		20836	
			423+85 434+09 437+43	424+64 437+43 455	211 6650 24929	232 7315 27422					
	17943	34969						34969		34969	
		42508	456 469+92	461+50 487+63	5521 32323	6073 35555	880	42508		42508	
		9086	495+20 506+52	501+03 509+99	5040 1580	5544 1738	1754	9086		9086	
		133526	444315				441681	2684	444315	7149	437166

To be borrowed by widening adjacent cuttings to Formation level.

on 639, &c --Continued.

N.

EMBANKMENTS.				Total Earth and Rockwork approximately estimated for completion of grading to Formation Level, at specified widths and permanent slopes.	
18 ft. wide; Slopes, 1 $\frac{1}{4}$ to 1.	With per cent. added.	Spoil of Surplus Line Cuttings.	Balance Totals		
...	441681	2634	444315	7149	437166
	1102				
	8				
	3229		15553		15553
	11214				
	812		90100		90100
	89288				
	288				
	3475				
	4444		8617		8617
	410				
	555951	2634	558585	7149	551436
and outlets of Culverts, say.....					16969
N. I ings.....					28359
ts and Cattle Guards.....				366	9908
				7515	606672

APPENDIX B.

CONTRACT No. 15.—Extending from the Easterly end of

STATION.		EXCAVATIONS.					
		Line Cuttings calculated 22 feet wide. Earth Slopes $1\frac{1}{2}$ to 1, Rock Slopes $\frac{1}{2}$ to 1, except where noted.			From Side Cuttings, &c., to make up Embankments.		Balance
From	To	Rock.	Earth.	Totals.	Rock.	Earth.	Totals.
<i>Brought Forward</i>		7149	303640	310789	.....	133526	444315
528+64	534+88		3088				
535+99	537+57		591				
542+45	543+27		34				
558+34	566+62		3109	6822		8731	15553
						15384	90100
572+03	588+92		74216	74216			
609+78	617+60		3104				
624+44	625+11		51				
633+05	635+04		254	3409		5208	8617
		7149	388087	395236		163349	558585

N. B.—Where Embankments require more material than the Line Cuttings at ordinary width supply, Contractors will be required, under clause 17 of the Specifications, to take the required material from the sides of cuttings, by increasing their width until the haul exceeds an average of 800 feet, or a maximum of 1600 feet ; after this, material required may generally be taken from borrowing pits.

Add for Catch V

" Approach

" Excavation

ABSTRACT.

Say Total Rock Excavation
 " Earth "

Easterly end of Contract No. 9 to Station 639, &c —Continued.

N.

		STATION.	EMBANKMENTS.				Total Earth and Rockwork approximately estimated for completion of grading to Formation Level, at specified widths and permanent slopes.		
			Line Fillings, 18 ft. wide; Slopes, 1½ to 1.		Spoil of Surplus Line Outtings.	Balance Totals			
&c., to ments.	Balance	From	To	Net.			With per cent. added.		Rock.	Earth.
Earth.	Totals.								
3526	444815				441681	2684	444815	7149	487166
		522+24	528+64	1002	1102				
		534+88	535+09	7	8				
8731	15553	537+57	542+45	2936	3229		15553		15553
		543+27	558+34	10195	11214				
5884	90100	566+62	572+03	738	812		90100		90100
		583+92	600+54	81171	89288				
		607	609+78	262	288				
		617+28	624+44	8159	3475				
		625+11	633+05	4040	4444				
5208	8617	635+04	639	373	410		8617		8617
3349	558585				555951	2634	558585	7149	551486
Add for Catch Water Drains, Stream Diversions, inlets and outlets of Culverts, say.....									16969
" Approaches to Public and Private Road Crossings.....									28359
" Excavations in Foundations of Bridges, Culverts and Cattle Guards.....								366	9908
								7515	606672

ABSTRACT.

..... 7,600 cubic yards.
 607,000 " "

[*Division of the Line.*] N.

at half-a-mile East of the Nipisiguit River,

Beam Culverts, Bridges and Viaducts.

opposed character of Foundation Strata, from Test Pits and other Remarks.

m. 1st class masonry. Concrete required under east abutment.
 ook. 1st class masonry. Concrete required under both abutments.
 ok. Concrete probably required.

ver. 1st class masonry. Concrete required.
 ache River. 1st class masonry.

masonry.
 ert is under the preceding arch and will require to be planked
 to carry Farm Road. Its length will be about 150 feet and will
 re about 1500 square feet of 6 inch plank.
 lge for Public Road.

[Restigouche District.]

INTERCOLONIA

CONTRACT No. 15. Extending from Eastern End of Contract
a distance of ab

Schedule of proposed Structures for the passage of Streams and Roads

AT STATION.	Description of Structure and reference to General Drawings.	Height from Line of Paving to For- mation Level.	Clear Opening.	ARCH OR BOX CULVERTS.		Ca
				Size.	Length of Arch or Box.	
		Feet.	Feet.	Feet.	Feet.	
14+50	Double Box Culvert.....Sheet No. 4	9		$2\frac{1}{2} \times 4$	30	
32+50	Bridge .....Sheet Nos. 18 & 19		{ one span of 80 ft.			
71	Bridge.....Sheet Nos. 18 & 19		{ one span of 80 ft.			
88	Box Culvert.....Sheet No. 3	6		$2\frac{1}{2} \times 2\frac{1}{2}$	25	
106+80	Arch Culvert.....Sheet No. 8	28		8 feet Arch.	66	
131	Box Culvert.....Sheet No. 3	11		$2\frac{1}{2} \times 4$	37	
143+50	Box Culvert.....Sheet No. 3	9		$2\frac{1}{2} \times 4$	30	
152	Box Culvert.....Sheet No. 3	7		$2\frac{1}{2} \times 4$	24	
161+30	Box Culvert.....Sheet No. 3	6		$2\frac{1}{2} \times 2\frac{1}{2}$	25	
192+50	Arch Culvert.....Sheet No. 21	37		20 feet Arch.	57	
214+50	Bridge.....Sheet Nos. 18 & 19		{ 3 spans of 100 ft.			
236+50	Beam Culvert.....Sheet No. 4	3	8			
242	Box Culvert.....Sheet No. 3	6		$2\frac{1}{2} \times 4$	21	
251+30	Box Culvert.....Sheet No. 3	34		$2\frac{1}{2} \times 4$	110	
264+50	Box Culvert.....Sheet No. 3	22		$2\frac{1}{2} \times 4$	72	
270+50	Box Culvert.....Sheet No. 3	21		$2\frac{1}{2} \times 4$	69	
296+20	Box Culvert.....Sheet No. 3	5		$2\frac{1}{2} \times 2\frac{1}{2}$	22	
312	Box Culvert.....Sheet No. 3	6		$2\frac{1}{2} \times 2\frac{1}{2}$	25	
325+20	Arch Bridge.....Sheet No. 10	33		12 feet Arch.	71	
325+20	Beam Culvert.....Sheet No. 4	4	6		150	
337+50	Bridge over Railway.....Sheet No. 23					
341	Box Culvert.....Sheet No. 3	15		$2\frac{1}{2} \times 4$	50	
349+50	Arch Culvert.....Sheet No. 5	24		4 feet Arch.	70	
356+60	Double Box Culvert.....Sheet No. 4	18		$2\frac{1}{2} \times 4$	59	
373+20	Box Culvert.....Sheet No. 3	13		$2\frac{1}{2} \times 4$	43	
384+50	Arch Culvert.....Sheet No. 9	23		10 feet Arch.	44	
401	Box Culvert.....Sheet No. 3	6		$2\frac{1}{2} \times 4$	21	
412	Box Culvert.....Sheet No. 3	9		$2\frac{1}{2} \times 4$	30	
424	Box Culvert.....Sheet No. 3	5		$2\frac{1}{2} \times 2\frac{1}{2}$	22	
435+50	Arch Culvert.....Sheet No. 6	19		5 feet Arch.	50	
442	Box Culvert.....Sheet No. 3	18		$2\frac{1}{2} \times 4$	59	
450	Box Culvert.....Sheet No. 3	17		$2\frac{1}{2} \times 4$	56	
455+50	Bridge.....Sheet No. 20		{ 2 spans of 80 ft.			
465+50	Bridge over Railway.....Sheet No. 23					
470+80	Box Culvert.....Sheet No. 3	12		$2\frac{1}{2} \times 4$	40	
475	Box Culvert.....Sheet No. 3	19		$2\frac{1}{2} \times 4$	62	
481+50	Arch Culvert.....Sheet No. 5	20		4 feet Arch.	58	
	Carried Forward.....					

COLONIAL RAILWAY.

[Division of the Line.] N.

and of Contract No. 9 to Station 639, about half-a-mile East of the Nipisiguit River, distance of about $12\frac{1}{10}$ miles.

Dams and Roads, embracing Arch, Box, and Beam Culverts, Bridges and Viaducts.

R BOX CULVERTS.		PROBABLE QUANTITIES.			Supposed character of Foundation Strata, from Test Pits and other Remarks.
	Length of Arch or Box.	Masonry.	Paving.	Excavation in Foundation.	
	Feet.	Cubic Yards.	Cubic Yards.	Cubic Yards.	
4	30	76	16	55	
.....		1082**	.....	542	Mill Stream. 1st class masonry. Concrete required under east abutment.
.....		1082**	.....	780	Grants' Brook. 1st class masonry. Concrete required under both abutments.
2½	25	35	7	25	
ch.	66	485	31	344	Louis' Brook. Concrete probably required.
4	37	58	10	45	
4	30	49	9	36	
4	24	41	9	29	
2½	25	35	7	25	
ch.	57	1680**	158	342	Peter's River. 1st class masonry. Concrete required.
.....		3350**	.....	1998	Tête-à-Gauche River. 1st class masonry.
.....		33	7	100	
4	21	37	9	25	
4	110	158	17	130	
4	72	106	13	87	
4	69	102	13	100	
2½	22	31	7	22	
2½	25	35	8	25	
ch.	71	887**	10	810	1st class masonry.
.....	150	233	34		This culvert is under the preceding arch and will require to be planked over to carry Farm Road. Its length will be about 150 feet, and will require about 1500 square feet of 6 inch plank.
.....		48	.....	85	Over Bridge for Public Road.
4	50	76	11	60	
ch.	70	226	10	205	
4	59	140	21	175	
4	43	67	11	52	
ch.	44	499	37	280	
4	21	37	9	25	
4	30	49	10	36	
2½	22	31	7	22	
ch.	50	219	11	176	Concrete probably required.
×4	59	88	12	70	Concrete probably required.
×4	56	84	12	67	
.....		862**	.....	488	This bridge will consist of two spans of 80 feet each, separated by a rock embankment on the Island in the middle of the river. 1st class masonry
.....		48	.....	85	Over Bridge for Public Road.
×4	40	93	10	48	
×4	62	13	93	74	
ch.	58	197	9	175	
...	.....	12422	548	7643	

reams.--Continued.

Supposed character of Foundation Strata, and other Remarks.

1st class masonry.

1st class masonry.

Over Bridge for public road.

Nepisiguit River. 1st class masonry.

Cubic Yards.

"

"

"

"

APPENDIX

CONTRACT No. 15.—Schedules of proposed Structures

AT STATION.	Description of Structure and reference to General Drawings.	Height from Line of Paving to Formation Level. feet.	Clear Opening. feet.	ARCH OR BOX CULVERTS.	
				Size. feet.	Length of Arch or Box. feet.
<i>Brought forward</i>					
500	Bridge .....Sheet No. 20		{ one span of 60 ft.		
507+25	Beam Culvert.....Sheet No. 11	10	8		
526	Box Culvert.....Sheet No. 3	4		2½ × 2½	20
540+80	Box Culvert.....Sheet No. 3	11		2½ × 4	37
551+80	Beam Culvert.....Sheet No. 11	11	8		
570	Box Culvert.....Sheet No. 3	4		2½ × 2½	20
583+25	Bridge over Railway.....Sheet No. 23				
604	Bridge.....Sheet Nos 18 & 19		{ 6 spans of 100 ft.		
618	Box Culvert.....Sheet No. 3	7		2½ × 4	24
626+50	Box Culvert.....Sheet No. 3	8		2½ × 4	27

Total.....

Masonry marked

ABS

Say Total First Class Masonry

" Second " "

" Paving

" Concrete

" Rip-Rap

Excavation in foundations, carried to Schedule of exc

Proposed Structures for the passage of Streams.—Continued.

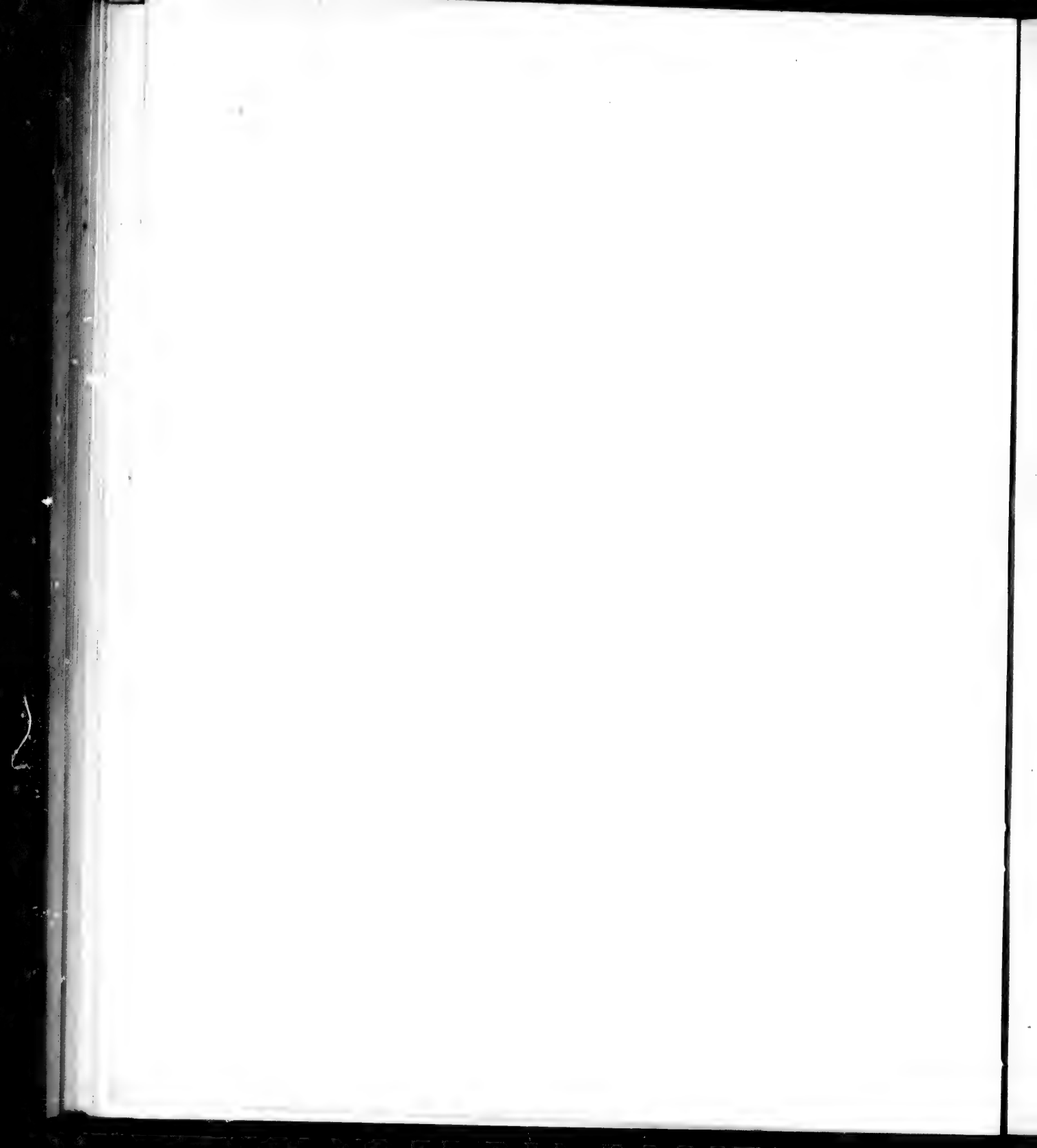
ARCH OR BOX CULVERTS.		PROBABLE QUANTITY.			Supposed character of Foundation Strata, and other Remarks.
Size. feet.	Length of Arch or Box. feet.	Masonry. cub. yds.	Paving. cub. yds.	Excavation in Foundation. feet.	
.....	.....	12422	548	7643	
		447**		508	1st class masonry.
		141	20	123	
2½ × 2½	20	29	7	20	
2½ × 4	37	58	10	44	
		149**	54	133	1st class masonry.
2½ × 2½	20	29	7	20	
		80		130	Over Bridge for public road.
		2483**		1587	Nepisiguit River. 1st class masonry.
2½ × 4	24	41	9	29	
2½ × 4	27	45	10	37	
.....	.....	15954	665	10274	

Masonry marked thus * * to be first class.

ABSTRACT.

.....	12,100 Cubic Yards.
.....	4,000 "
.....	700 "
.....	600 "
.....	750 "

to Schedule of excavations.



(No. 1.)

APPENDIX C.

CONTRACT No. 9.

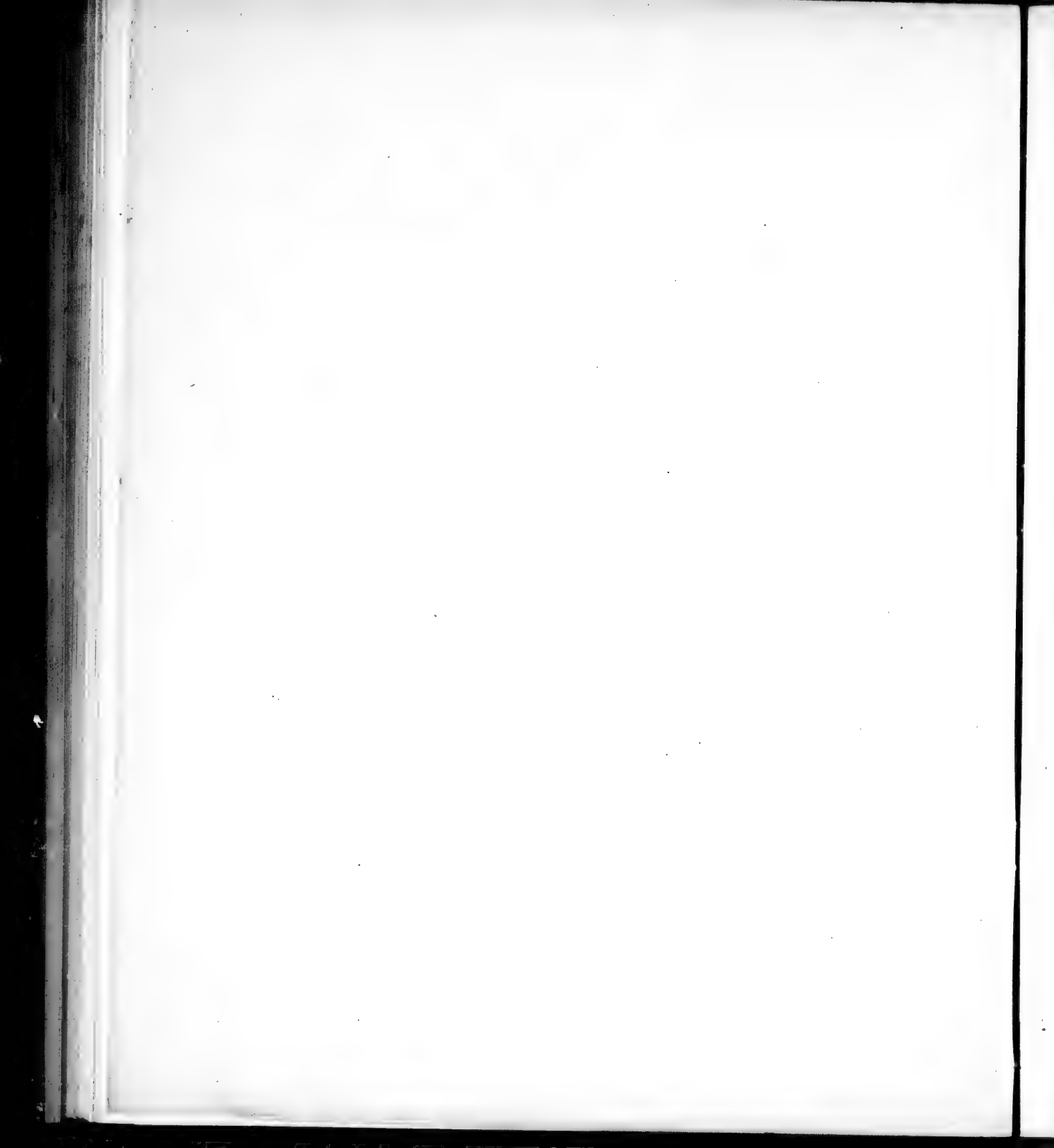
RESTIGOUCHE DISTRICT.

INTERCOLONIAL RAILWAY.

DIVISION OF LINE M.

SCHEDULE of Rock and Earth Excavations, shewing the Total Quantities in the Division, the Quantity done, and the Quantity remaining to be done, 31st October, 1871.

Station.		Total Quantities.		Quantity done.		Quantities to be done.		REMARKS.
From	To	Rock, C. Yds.	Earth, C. Yds.	Rock, C. Yds.	Earth, C. Yds.	Rock, C. Yds.	Earth, C. Yds.	
0	45-80		45,488		8,131		37,357	
45-80	91-43		15,821		4,288		11,533	Quantity reduced by change of Grade.
91-43	140-08	7,000	9,343	1,337	5,613	5,663	3,730	" " "
140-08	191-77	1,200	20,001	649	3,872	551	16,129	Quantity of rock reduced by change of Grade.
191-77	227-15	11,128	3,919	6,229	2,785	4,899	1,134	
227-15	260-70	450	12,148		3,590	450	8,558	
260-70	280-20		2,600		1,895		706	
280-20	440-75		62,638		26,752		35,886	
440-75	490-65	1,400	13,935		5,331	1,400	8,604	
490-65	519-80		5,300		3,752		1,548	
519-80	569-35	6,036	17,827	3,988	12,898	2,048	4,929	
569-35	596-90	3,710	15,745	3,044	3,097	666	12,648	
596-90	642-75	7,757	20,228	4,267	3,436	3,490	16,787	
642-75	657-30	124	3,627	124	3,510		117	
657-30	684-66	2,283	6,018	2,103	1,385	180	4,633	
684-66	724-25	3,279	13,237	2,841	9,641	438	3,776	
724-25	761-88	8,019	3,611	6,101	3,611	1,918	8,107	Quantity in embankment reduced by rock slopes standing at a steeper pitch than estimated.
761-88	819	9,099	28,464	9,099	20,357			
819	847-68		8,383		6,869		1,514	
847-68	953-02		32,587		28,941		3,646	
953-02	998		16,536		13,438		3,098	A per centage should be added for shrinkage and trimming up.
998	1,019		2,330		2,094		236	
1,019	1,109		36,796		30,740		6,056	
Line cuttings and borrows		63,022	406,491	39,782	205,846	23,240	200,645	2½ per 100 added for shrinkage of embankment, side drains in cutting, and trimming up.
		247	18,150	125	5,418	122	12,732	Catch water drains, stream diversions, inlets and outlets to culverts.
		1,980	28,850		3,605	1,980	25,245	Approaches to public and private road crossings.
		948	5,316	661	3,360	287	1,956	Excavation in foundations, of bridges, culverts and cattle guards.
		763	2,113	300	2,113	463		Tunnel approaches (Armstrong's Brook).
Totals	.....	66,960	460,920	40,868	220,342	26,092	240,578	



RESTIGOUCHE I

SCHEDULE OF STRUCTURE

Station.	Description of G
11-50	Changed to Tu
52	Single Box Cu
80-51	Arch Culvert.
95	Double Box Cu
109-28	" "
143-41	" "
180-65	" "
201	Beam Culvert
211-20	" "
222-40	Box Culvert...
226-42	Bridge (Iron G
265	Stone Cattle G
275-57	Beam Culvert-

RESTIGOUCHE DISTRICT.

APPENDIX
INTERCLOSCHEDULE OF STRUCTURES for the passage of Streams and Roads, embracing Arch, Box and
Division, the Quantity Done, and the Quantity

Station.	Description of Structure and Reference to General Drawings.	Clear Opening. Feet.	Arch or Box Culvert. Size. Feet.	Total Quantity.	
				Masonry.	
				1st Class. Cub. yds.	2nd Class. Cub. yds.
11:50	Changed to Tunnel.....				
52	Single Box Culvert—Sheet No. 3.....		2½ x 4		58
80:51	Arch Culvert..... " " 8.....		8 ft. arch		285
95	Double Box Culvert.. " " 4.....		2½ x 4		83
109:28	" " " " 4.....		2½ x 4		64
143:41	" " " Special Drawing		6 x 4		240
180:65	" " " Sheet No. 4.....		2½ x 4		85
201	Beam Culvert..... " " 4.....	8 ft.			15
211:20	" " " " 4.....	6 "			25
222:49	Box Culvert..... " " 3.....		2½ x 3		140
226:42	Bridge (Iron Girder).....	2 spans 60ft.		455	
265	Stone Cattle Guard.....	6 ft.			40
275:57	Beam Culvert—Sheet No. 4.....	6 "			44
283:10	" " " " 4.....	6 "			40
300	Box " " " 3.....		2½ x 4		38
342	Beam " " " 4.....	8 "			60
365:40	" " " " 4.....	12 "			60
381	Box " " " 3.....		2½ x 4		45
398:80	Beam " " " 11.....	15 "			90
411	Box " " " 3.....		2½ x 4		39
436	Beam " " " 4.....	8 "			40
463:33	" " " " 4.....	10 "			59
474	Box " " " 3.....		2½ x 4		64
503:50	" " " " 3.....		3 x 4		50
552	Double Box Culvert, or 10 ft. Beam Culvert—Special Drawing.....		3½ x 5		156
571:50	Double Box Culvert—Sheet No. 4.....		2½ x 4		101
584	Box Culvert..... " " 3.....		2½ x 2½		31
590:50	Beam Bridge, or 14 ft. arch Culvert, stream 20 ft. wide—Sheet No. 11.....	20 "		700	
610	Box Culvert—Sheet No. 3.....		2½ x 4		50
635:50	" " " " 3.....		2½ x 4		81
644	" " " " 3.....		2½ x 2½		41
655	Beam Culvert, or Double Box—Sheet No. 4.....	6 "			60
661:80	Box " " " " 3.....		2½ x 4		60
678:20	Beam " " " " 4.....	10 "			35
698:50	" " " " 11.....	10 "			127
707:40	" " " " 11.....	8 "			129
725:62	Box " " " " 3.....		2½ x 4		17
736	" " " " 3.....		2½ x 4		33
761	Iron Girder Bridge.....	80 ft. span		777	
786:50	Arch Culvert—Sheet No. 7.....		6 ft. arch		260
807	Beam Bridge—Special Drawing	2 spans 20 ft.		570	
824:74	Box Culvert—Sheet No. 3.....		2½ x 4		44
835	" " " " 3.....		2½ x 4		49
864:20	Beam " " " " 11.....	10 ft.			102
890	" " " " 11.....	10 "			110
900	Box " " " " 3.....		2½ x 4		30
909:30	" " " " 3.....		3 x 4		17
933	" " " " 3.....		2½ x 4		55
962:50	Beam " " " 4.....	8 "			11
994	Beam Bridge " " 11.....	12 "			228
1003	Iron Girder Bridge.....	80 ft. span		786	
1052:50	Double Box Culvert—Sheet No. 4.....		2½ x 4		88
1074:20	Beam Culvert..... " " 11.....	8 ft.			88
1082:20	" " " " 11.....	8 "			46
1102	" " " " 11.....	8 "			109
				3,516	3,684

Note * denotes Rock.

By substituting Iron for
" " Tunnel
" Increasing NumberBy Reducing number, si
" Entering as 1st Class

RESTIGOUCHE DISTRICT.

II

SCHEDULE of structures for the passage of streams and road
each kind of work on this Division.

Station.	Description of structure and reference to General Drawings.	Clear opening.		Are Cul Feet.
11.50	Double box culvert sheet No. 4	5		1
32.50	Bridge " " 14	80		30
71	Bridge " " 14	80		
88	Box culvert " " 3	21 $\frac{1}{2}$		25
106.80	Arch " " " 8	8		66
131	Box " " " 3	21 $\frac{1}{2}$		37
143.50	Box " " " 3	21 $\frac{1}{2}$		30
152	Box " " " 3	21 $\frac{1}{2}$		24
161.30	Box " " " 3	21 $\frac{1}{2}$		25
192.50	Arch " " " 21	18		63
214.50	Bridge " " 14	500		
236.50	Beam culvert " " 4	8		
238	Bridge over Railway " " 23			
242	Box culvert " " 3	21 $\frac{1}{2}$		31.2
251.32	Box " " " 3	21 $\frac{1}{2}$		105
260	Bridge over Railway " " 23			
264.25	Box culvert " " 3	21 $\frac{1}{2}$		61
268.60	Box " " " 3	21 $\frac{1}{2}$		69.77
284	Bridge over Railway " " 23			
312.20	Box culvert " " 3	21 $\frac{1}{2}$		25
325.20	Arch " " " 7	6		94
337.50	Bridge over Railway " " 23			

RESTIGOUCHE DISTRICT

SCHEDULE of structures for the passage of
each kind of workStation. Description of structure and reference
to General Drawings.

14.50	Double box culvert sheet No	
32.50	Bridge	" "
71	Bridge	" "
88	Box culvert	" "
106.80	Arch	" "
131	Box	" "
143.50	Box	" "
152	Box	" "
161.30	Box	" "
192.50	Arch	" "
214.50	Bridge	" "
236.50	Beam culvert	" "
238	Bridge over Railway	" "
242	Box culvert	" "
251.32	Box	" "
260	Bridge over Railway	" "
264.25	Box culvert	" "
268.60	Box	" "
284	Bridge over Railway	" "
312.20	Box culvert	" "
325.20	Arch	" "
337.50	Bridge over Railway	" "
341	Box culvert	" "
349.50	Box	" "
356.62	Double box culvert	" "
373.25	Box culvert	" "
384.50	Arch	" "
401	Box	" "
412	Box	" "
424	Box	" "
435.75	Box	" "
441	Box	" "
449	Box	" "
455.50	Bridge 2 spans of 80'	" "
465.50	Bridge over Railway	" "
474	Double box culvert	" "
481.25	Box culvert	" "
500	Bridge 1 span of 60'	" "
507.25	Beam culvert	" "
526	Box	" "
540.80	Box	" "
551.80	Beam	" "
570	Box	" "
583.25	Bridge over Railway	" "
604	Bridge 6 spans of 100'	" "
618	Box culvert	" "
626.50	Box	" "

NOTE.—xx Rock in excavations of f

APPENDIX D.

CONTRACT No. 15

STIGOUCHE DISTRICT.

INTERCOLONIAL RAILWAY.

DIVISION OF THE LINE N.

structures for the passage of streams and roads embracing Arch Box and Beam Culverts, Bridges and Viaducts, shewing the total quantities of each kind of work on this Division, the quantity done, and the quantity remaining to be done October 31st, 1871.

Description of structure and reference to General Drawings.	Clear opening. Feet.	Arch or Box Culvert size. Feet.	Total Quantities.				Quantities Executed.				Quantities to be done.				
			Masonry.			Excavation in Foundation. C. Y.	Masonry.			Excavation in Foundation. C. Y.	Masonry.			Excavation in Foundation. C. Y.	
			1st Class. C. Y.	2nd Class. C. Y.	Paving. C. Y.		1st Class. C. Y.	2nd Class. C. Y.	Paving. C. Y.		1st Class. C. Y.	2nd Class. C. Y.	Paving. C. Y.		
Double box culvert sheet No. 4	5	6 W H 30 x 2½ x 4			76	16									
Edge " " 14	80		*777			55							76	16	55
Edge " " 14	80		*911			542						*777			542
Box culvert " " 3	2½	25 x 2½ x 2½			35	7						*911			780
Box " " 8	8	66			485	31							35	7	25
Box " " 3	2½	37 x 2½ x 4			58	10							485	31	344
Box " " 3	2½	30 x 2½ x 4			49	9							58	10	45
Box " " 3	2½	24 x 2½ x 4			41	9							49	9	36
Box " " 3	2½	25 x 2½ x 2½			35	7							41	9	29
Box " " 21	18	63 x 18	1,458			200 xx							35	7	25
Edge " " 14	500		*2,613			249									200 xx
Box culvert " " 4	8				33	7	686				109	1,458		133	140
Edge over Railway " " 23					48	85					10 xx				436
Box culvert " " 3	2½	31.2 x 2½ x 2½			41	8					649	1,927		33	7
Box " " 3	2½	105 x 2½ x 4			151	16		41	8	49			48		85
Edge over Railway " " 23					48	85		151	16	130					
Box culvert " " 3	2½	69 x 2½ x 4			102	13		102	13	133			48		85
Box " " 3	2½	69.75 x 2½ x 4			103	13		103	13	153					
Edge over Railway " " 23					48	85									
Box culvert " " 3	2½	25 x 2½ x 4			35	8							48		85
Box " " 7	6	91			427	24							35	8	25
Edge over Railway " " 23					48	85							427	24	425
Box culvert " " 3	2½	46.1 x 2½ x 4			71	11							48		85
Box " " 3	3	80 x 3 x 4			120	16		71	11	45					
Double box culvert " " 4	5	56.2 x 2½ x 4			133	21		120	16	148					
Box culvert " " 3	2½	42.8 x 2½ x 4			66	11		133	21	106					
Box " " 9	10	43.5	499		37	193	182	66	11	84					
Box " " 3	2½	21 x 2½ x 4			37	9					193	317		37	
Box " " 3	2½	34 x 2½ x 4			54	10							37	9	25
Box " " 3	2½	23.5 x 2½ x 2½			33	7		54	10	88					
Box " " 3	4	61 x 4 x 5			112	18		33	7	59					
Box " " 3	2½	66 x 2½ x 4			98	13		112	18	127					
Box " " 3	2½	60 x 2½ x 2½			73	11		98	13	200					
Edge 2 spans of 80' " " 20	160		711			20 xx					10 xx				10 xx
Edge over Railway " " 23					48	85	405				163	306		48	37
Double box culvert " " 4	6	55 x 3 x 5½			199	8									85
Box culvert " " 3	2½	71 x 2½ x 3			93	12		199	8	155					
Edge 1 span of 60' " " 14	60		435			317	216	93	12	53					
Box culvert " " 22	10				141	20					317	219			
Box " " 3	2½	20 x 2½ x 2½			29	7							141	20	123
Box " " 3	2½	37 x 2½ x 4			58	10							29	7	20
Box " " 11	10		166		30	274	150						58	10	44
Box " " 3	2½	20 x 2½ x 2½			29	7					274	16		30	
Edge over Railway " " 23					80	130							29	7	20
Edge 6 spans of 100' " " 14	600		2,076			1200	1,507				929	569		80	130
Box culvert " " 3	2½	24 x 2½ x 4			41	9									271
Box " " 3	2½	27 x 2½ x 4			45	10							41	9	29
			9,646	3,423	588	230 xx	8480	3,146	1,449	188	20 xx	4,312	6,500	1,974	400
															210 xx
															4,168

FIRST-CLASS MASONRY—REDUCTION IN QUANTITIES.

APPROXIMATE

Quantity reduced by the substituting of Iron for Timber superstructure	C. Y.
" " " level crossing for Bridge	1,200
" " by change in size of structure and diff. in depth foundation	887
	367
	2,454

SECOND-CLASS—By reducing number, size and form of structure 577 C.Y.

Rock in excavations of foundations.



RESTIGOUCHE DISTRICT. INTERCOLONIAL RAILWAY. DIVISION OF THE LINE N.

SCHEDULE of Rock and Earth Excavations, showing the Total Quantity in this Division, the Quantities done and the Quantity remaining to be done, 31st October, 1871.

Stations.		Total Quantity.		Quantity done.		Quantity to be done.		REMARKS.
From.	To.	Rock. C Yds.	Earth. C Yds.	Rock C Yds.	Earth C Yds.	Rock C Yds.	Earth C Yds.	
0	44-10		28,570		1,022		27,548	
44-10	79-90		19,443		1,569		17,874	
79-90	145-40		29,437		9,179		20,258	Quantity reduced by change of grade.
145-40	177	389	5,530	3,694	2,899	2,548	2,631	" " " "
177	198-04	5,853	39,138		21,561		17,577	
198-04	248-95		99,921		37,099		62,822	
248-95	296		47,246		36,462		10,784	This does not include 9,474 c. yards to be left in cut for ballast.
296	352-12		57,467		27,560		29,907	
352-12	377-22		11,376		9,058		2,318	
377-22	398		20,979		12,467		8,512	
398	417-12		5,738		1,304		4,434	
417-12	465		39,511		6,103		33,408	
465	495-31		36,084		14,704		21,380	
495-31	528-74		8,490		nil.		8,490	
528-74	572		16,300		nil.		16,300	
572	601-60		90,438		15,213		75,225	This total is amount in cut.
607	639		8,733					Embankment is 87,794, but difference will be taken up by slopes sliding.
					nil.		8,733	
		\$6,242	564,401	3,694	196,200	2,548	368,201	

ABSTRACT.

0	639	6,242	564,401	3,694	196,200	2,548	368,201	
			15,763				15,763	Add for catch-water drains, stream diversions, inlets and outlets to culverts.
			24,000		344		23,656	Approaches to public and private road crossings.
		230	8,480	20	4,312	210	4,168	Excavation in foundations of bridges and culverts.
			432		144		288	Excavation in cattle guards
		6,472	613,076	3,714	201,000	2,758	412,076	

* This quantity allows for 15,000 cubic yards being carried across the Tête-à-gauche Bridge, which will most likely be run to spoil and increase this to 628,000 cubic yards.

INTERCOLONIAL RAILWAY,—CONTRACT NO. 15.—REVISED SCHEDULE.

Quantities.	Description of work.
102	Acres clearing,
2	“ close cutting,
6	“ grubbing,
122,300	L feet fencing as per specification,
6,500	“ “ snake fence,
6,472	Cubic yards rock excavation,
613,076	“ “ earth, “
13,500	L feet under-drains,
731	Cubic yards rip-rap,
500	“ “ concrete,
9,646	“ “ first-class masonry,
3,423	“ “ second-class masonry,
588	“ “ paving,
82,500	Foundations
1,500 ft.	Bridge superstructure:—4 spans of 80 ft., 11 spans of 100', 1 span of 60 ft. 2 of 10',
648 ft.	Six timber road bridges over railway, at \$7.50 per ft. \$4860.00
6	Cattle guards for road crossings and diversions, at \$80 480.00
	Farm crossing bridges 57,320 lineal feet of cedar, at 5c. 2866.00

Bathurst 31st Oct., 1871.

RES

SCHED

Station

From	
10	
74	
91-82	1
115	1
126	1
127-60	
157	
172	
204-25	
223-75	2
227-10	2
228-50	
235	
303	
445	
454	
504	
579	
539	
560	5
595-58	5
602-79	6
615	
630	
669	6
712	7
746	7
759-08	7
761-88	
789	
819	
989	9
1,025	1

RESTIGOUCHE DISTRICT.

SCHEDULE showing the total quantities to be done

Station.		Description of Work.	Total required for Rock C. Yds.
From	To		
10	12-20	Embankment.	1,025
74	78	do	
91-82	112-79	do	
115	123-92	do	
126	127-60	Fill up quarry on line.	
127-60	135	Spoil from cutting.	
157	160	Spoil.	
172	184	Embankment.	
204-25	216	Spoil from cutting.	
223-75	225-20	do do	
227-10	228-50	do do	
228-50	232	Filling through cutting.	
235	240	Embankment.	
303	314	do	
445	453	Filling through cutting.	
454	463	Embankments.	
504	518	do	
579	535	Spoil rock from cutting.	
539	546	Embankment.	
560	569-59	Spoil from cutting.	
595-58	596-90	do do	
602-79	604-13	do do	
615	625	do do	
630	637	Embankment.	1,025
669	680-25	Spoil from cutting.	
712	721-07	do do	
746	751-25	do do	
759-08	760-30	Embankment.	
761-88	775	Spoil from cutting.	
789	804	Embankment.	
819	836	do	
989	999-15	do	
1,025	1,109	do	
Totals			1,025

APPENDIX E.

(No. 1.)

INTERCOLONIAL RAILWAY.

CONTRACT No. 9, M.

ET.

total quantities to be done in road bed; quantities—how obtained; also, showing surplus line cutting to be spoiled. Up to 30th November, 1872.

Description of Work.	Total Quantities required to complete roadway.		Materials, how obtained.				Spoil or Surplus.		Balance Totals.		Remarks.
			Catch-water.		Cuttings and borrow.						
	Rock C. Yds.	Earth C. Yds.	Rock C. Yds.	Earth C. Yds.	Rock C. Yds.	Earth C. Yds.	Rock C. Yds.	Earth C. Yds.			
ment.		12,113				12,113				12,113	15 per cent added to this bank.
		112		112						112	Emb. made up from catch drain.
		685		685						685	do do
		167		167						167	do do
quarry on line. on cutting.	1,027				1,027				1,027		do Line cutting.
							1,984		1,984		Spoil after filling in quarry.
							454		454		Spoil from cutting.
kment.		780		288		492			7	780	Part from catch and part borrow
om cutting.							184	297	184	297	Spoil from cutting.
do								80		80	do
do							32		32		do
through cutting.		120				120				120	Borrow.
kment.		155		155						155	Made up from catch drains.
o		413		100		313				413	do and borrow.
through cutting.		221		221						221	Made up from catch drains.
kments.		250		250						250	do do
o		45		45						45	do do
ock from cutting.					100	}	201		201	}	Note. The 100 c. y. of earth in cut goes to bank below from cut. & bor.
kment.		238			138						
om cutting.							30		30		
do							46		46		
do							5		5		
do							230		230		
kment.		120		120						120	Made up from catch drain.
om cutting.							10	509	10	509	From spoil in cutting.
do							6		6		
do							189		189		
kment.		61				61				61	Spoil in cutting.
om cutting.							10		10		
kment.		103				103				103	Borrow.
o		840		340						340	Made up from cut.
o		77				77				77	Borrow.
o		2,527				2,527				2,527	do.
Totals	1,027	18,527	Nil.	2,483	1,027	16,044	3,381	886	4,408	19,413	



APPENDIX E.—Continued.

(No. 2)

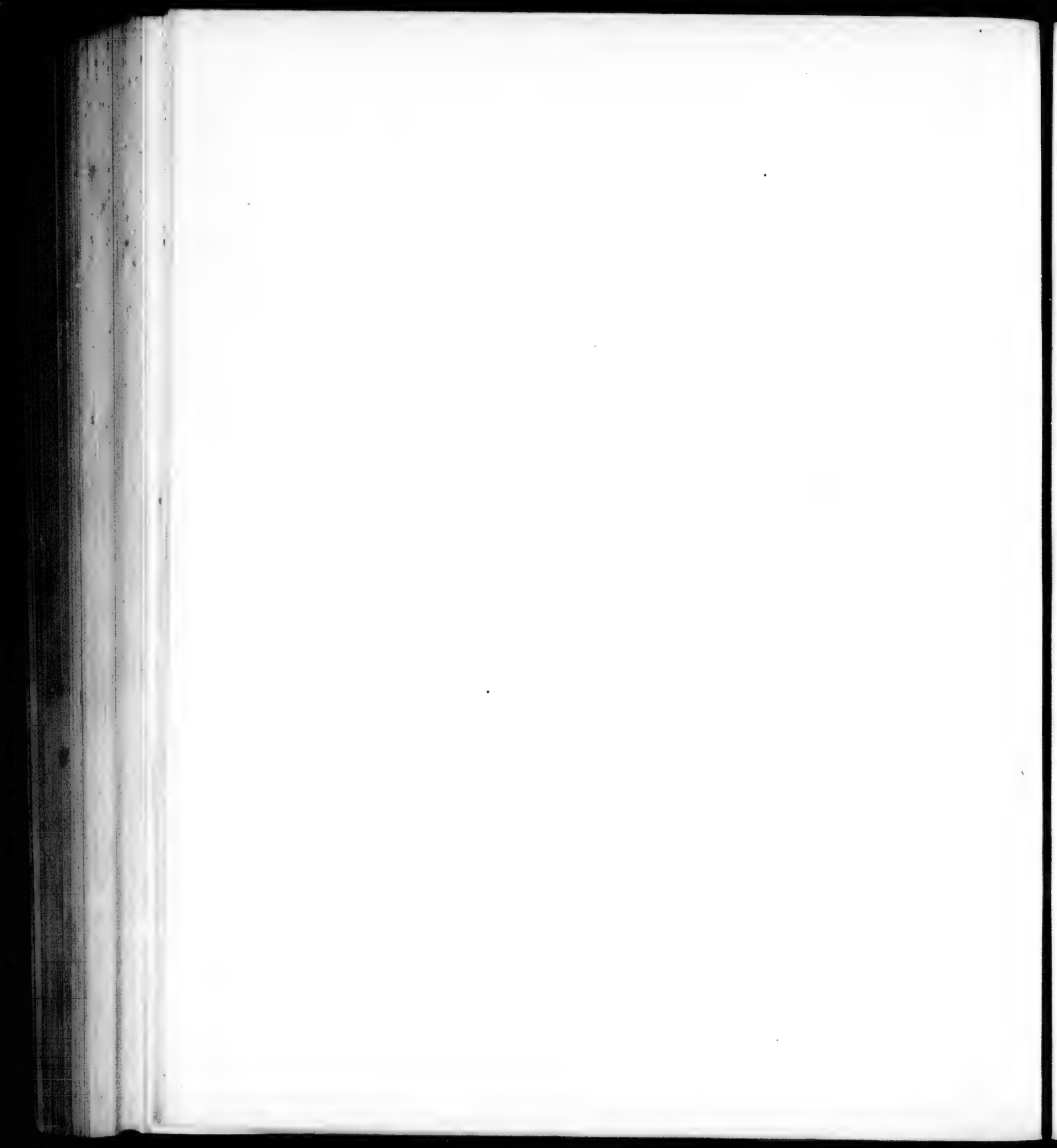
RESTIGOUCHE DISTRICT.

INTERCOLONIAL RAILWAY.

CONTRACT No. 9, DIVISION M.

SCHEDULE of Catchwater Drains required on this Division up to 30th November, 1872, and showing how they are disposed of, &c., &c.

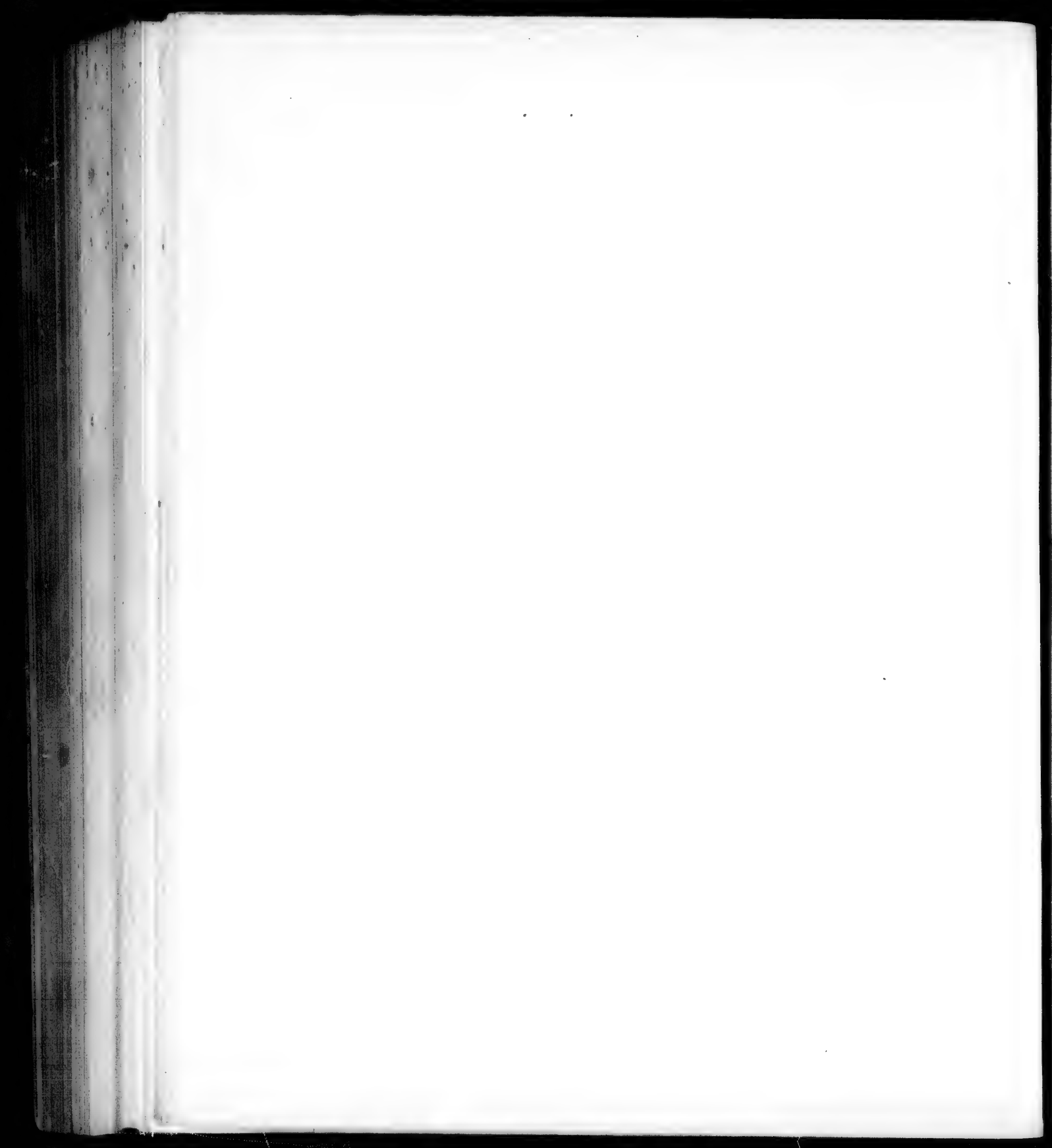
Station.		Description, giving size of drain, and position north and south.	Total in Drains.			Quantity Done.			Remaining.			How Disposed of.			REMARKS.
From.	To.		Rock.	Earth.	c. yds.	Rock.	Earth.	c. yds.	Rock.	Earth.	c. yds.	Placed in embankment earth.	Rock.	Earth.	
25	46	1-6 c. yd. per lin. yd. N. & S.		1,400			349			1,051				1,051	
62	70	" " " " " N.		267			63			204				92	
62	70	" " " " " S.		133						133				133	
109	143	" " " " " S.		1,133			102			1,031				179	
143	173	" " " " " S.		800			612			188				188	
189	201	" " " " " S.		400			20			380				280	
243	258	" " " " " S.		500						500				345	
250	258	" " " " " S.		267						267				267	
265	375	2-6 c. ft. per lin. ft. N. & S.		1,630			762			868				768	
430	438	" " " " " N.		89						89				89	Old drain to be widened.
438	455	1-6 c. yd. per lin. yd. N.		566						566				345	
430	450	3-6 c. ft. " " ft. S.		222						222				222	" "
450	455	1-2 c. yd. " " yd. S.		250						250				250	" "
516	526	1-2 c. yd. " " " N.		333						333				45	
532	535	" " " " " N.		100						100				100	
609	612	" " " " " S.		100						100				100	
625	628	" " " " " S.		200						200				120	
614	645	" " " " " S.		28						28				80	
648	652	" " " " " S.	5	28					5	28				5	
652	654	" " " " " S.	20	113					20	113				20	
720	724	" " " " " S.	10	57					10	57				10	
737	740	4 c. ft. " " ft. S.	17	116					17	116				17	
816	825	1 c. yd. " " yd. N. & S.		133						133				116	
946	944	2 c. ft. " " ft. S.		600						600				133	Old drain to be deepened.
963	968	" " " " " S.		60						60				260	
1004	1025	1-2 c. yd. " " yd. N. & S.		37						37				60	
				700						700				700	
Totals.....			52	10,234			1,908		52	8,326		2,483	52	5,843	



RESTIGOUCHE DISTRICT.—INTERCOLONIAL RAILWAY.—CONTRACT 9, DIVISION M

SCHEDULE of Side drains on road bed, Offtakes and Inlets, &c., remaining to be done 30th November, 1872.

Station.		Description.	Rock.	Earth.	Remarks.
From	To		C. Yards.	C. Yds.	
478	488	1½ c. feet per lineal foot,	166		Both sides.
520	535	do do	70		South side.
560	567	do do	32		do
614	625	do do	102		Both sides.
669	677	do do	37	37	do
712	721	do do	83		do
746	759	do do	56		do
		Total	546	37	Side drains.
52		Oftakes		50	} To be widened and deepened. do
180		do		30	
211		do		50	
276		do		40	
283		do		40	
342		do		40	
365		do		40	
376		do		20	
383		do		40	
300		do		40	Omitted in its outlet.
396		do		50	
464		do		50	
698		do		50	
768		do		850	Outlet to a new beam of 8 ft required here.
		Total Oftakes		1,390	

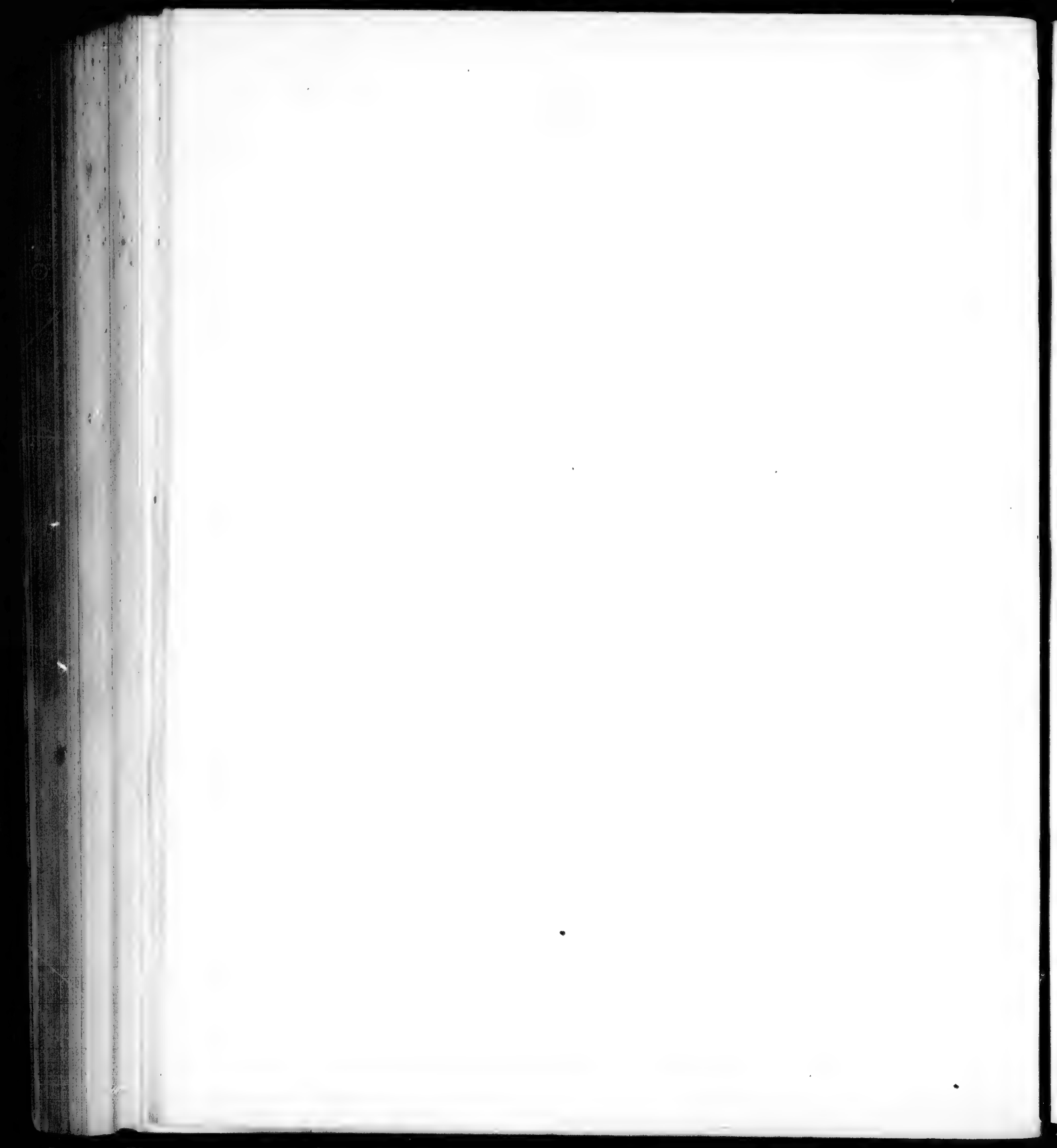


RESTIGOUCHE DISTRICT.—INTERCOLONIAL RAILWAY.—CONTRACT 9.—DIVISION M.

SCHEDULE of Foundations, Road Approaches, Under-Drains, Rip Rap, &c., &c., remaining to be done 30th November, 1872.

Station.		Description.	Quantity.		Remarks.
From	To		Rock.	Earth.	
225	80	Girder Bridge	5	.....	East abutment Belle-dune.
768		Beam Culvert, 8 ft. span		49	A new culvert extra.
		Cattle guards		740	
		Total	5	780	Foundations.
464		Road Approach.			100 Required.
		<i>Under Drains.</i>			
25	46	Lineal feet	4200		Both sides.
1004	1025	" "	4200	" "	
		Total	8400		Required.
994		Rip Rap cubic yds—Total	30	"	
		Cattle guards, pairs	10	"	
		<i>Sign Boards at Public Roads.</i>			
*25		Public roads, 1 sign each	25	"	
		<i>Clearing etc., over whole Contract.</i>			
		Total acres	50	"	
		Fencing lin. feet	206,000		Cedar log fence.
		<i>Bridge Superstructure.</i>			
		Timbers in stringers, &c., 22 beam culverts, from 6' to 20' clear open in all 243 in the clear.			

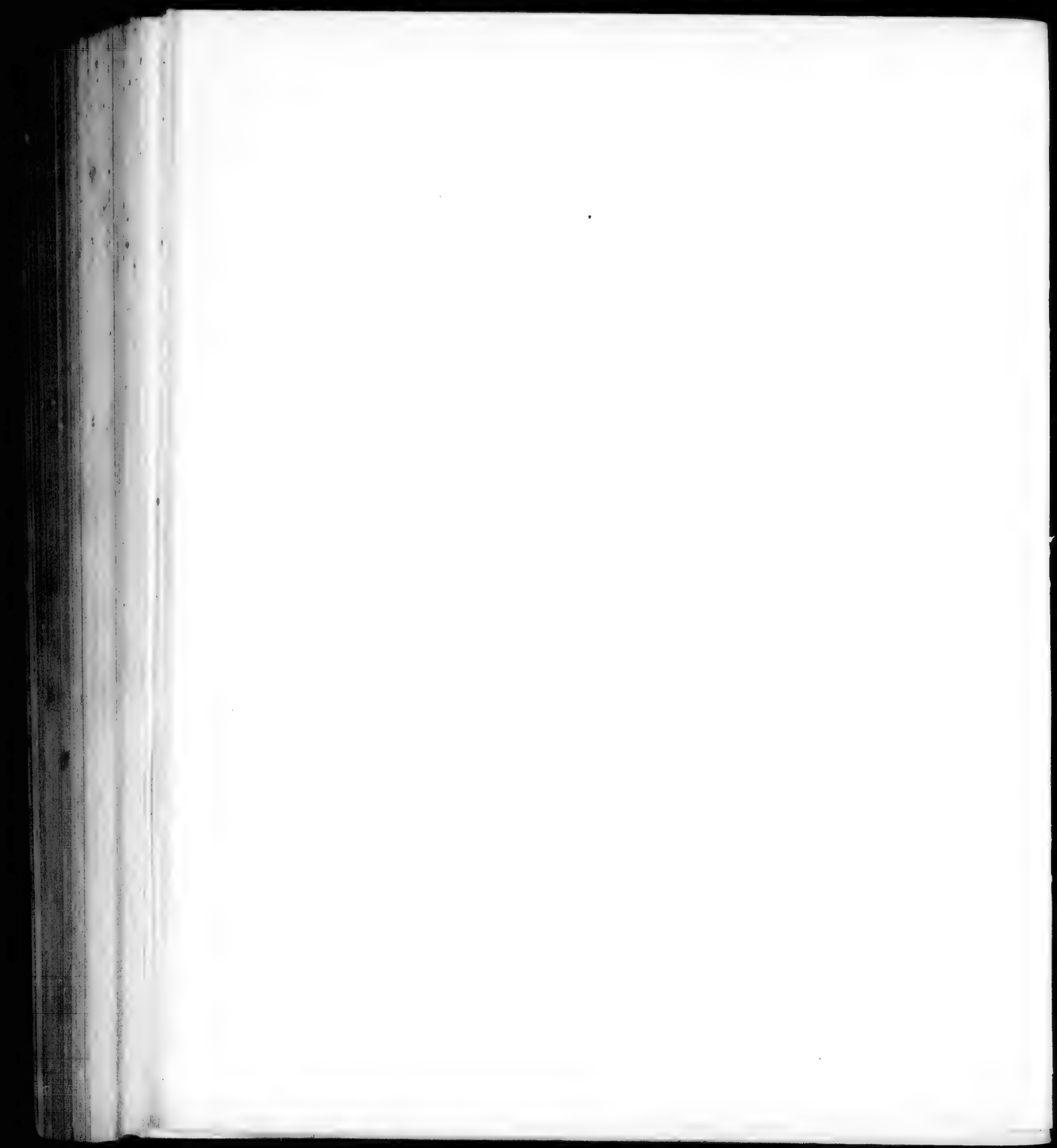
* NOTE.—There are five public roads not opened to railway. Query? whether signs and guards required. In original schedule they are.



RESTIGOUCHE DISTRICT. — INTERCOLONIAL RAILWAY. — CONTRACT 9, DIVISION M.

ABSTRACT of Rock and Earth Excavation remaining to be done on this Division, 30th November, 1872.

Description & disposition of materials.	Total Quantity	
	Rock	Earth
	c. yds.	c. yds.
Rock to be placed in Road Bed	1,027	
Spoil from Surplus Cuttings	3,381	
“ “ Catch Drains	52	
“ “ Side drains on road bed	546	
Foundations	5	
Total rock remaining	5,011	
Earth to be placed in road bed		18,527
“ Spoil from cuttings		886
“ “ Catch drains		5,843
“ “ Side drains on road bed		37
“ “ Offtakes		1,390
Foundations		780
Road Approaches		100
		27,563



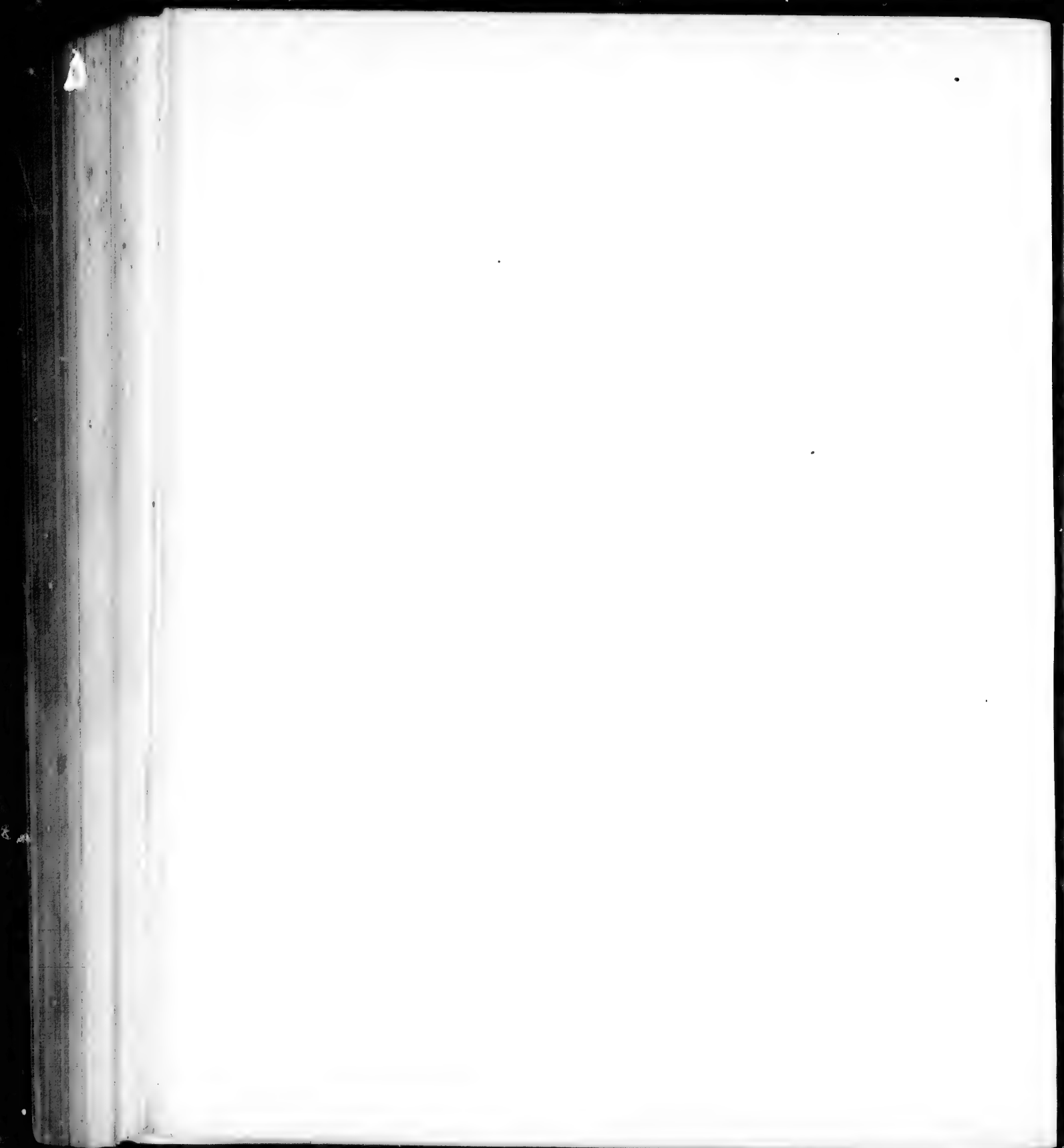
APPENDIX E.—Continued.

(No. 6.)

RESTIGOUCHE DISTRICT.—INTERCOLONIAL RAILWAY.—CONTRACT 9.—DIVISION M.

SCHEDULE of Masonry remaining to be done 30th November, 1872.

Station.	Description of Structure.	1st Class.	2nd Class.	Paving.
225·81 768	Girder Bridge, Belledune, Ballast wall..	6		
	Beam Culvert 8' span.....		25	7
	Retained for Painting and work executed; distributed over the whole contract	5	5	
	Total Masonry.....	11	30	7



APPENDIX E.—Continued.

(No. 7.)

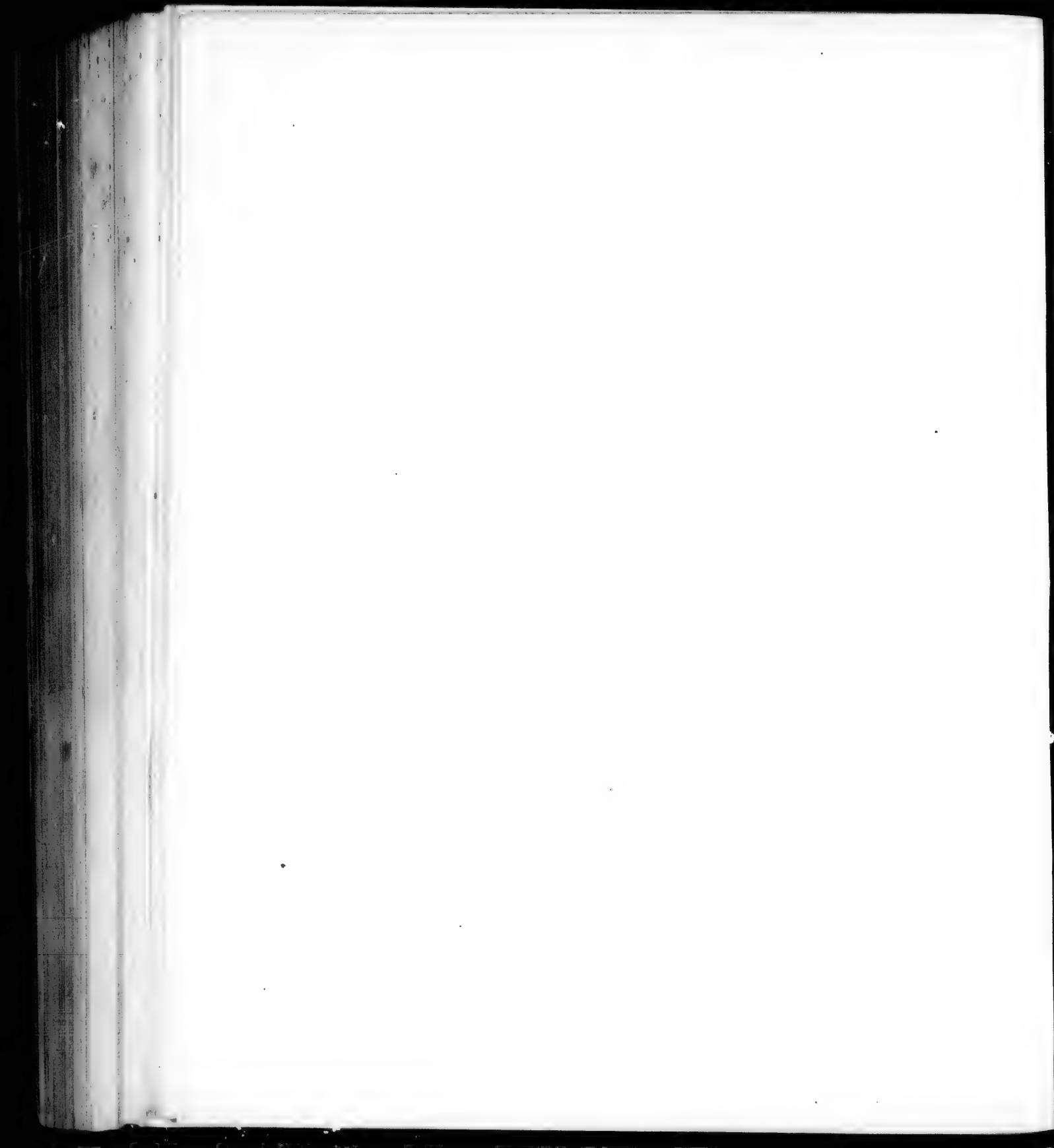
RESTIGOUCHE DISTRICT.—INTERCOLONIAL RAILWAY.—CONTRACT 9.—M.

BILL OF WORKS remaining to be done on the 30th November, 1872.

Approximate Quantities.	Description of Work or Service.	Rate.	Amount.
50	Acres of clearing.	\$ cts.	\$ cts.
206,000	Lineal feet of Fencing.		
5,011	Cubic yards rock excavation.		
27,563	" " earth		
8,400	Lineal feet under drains.		
30	Cubic yards rip-rap.		
11	" " first-class masonry.		
30	" " second "		
7	" " paving.		
	Foundations.		50
	Bridge superstructure.		4320
	Beam culverts, 243 feet clear.		
10	Pairs cattle guards.		
25	Sign boards.		
1	Single farm crossing.		
460	Cubic yards sheeting at tunnel Armstrong's Brook.		

Work done in December, 1872.

550 cubic yards put into embankment at Armstrong's Brook. Other quantities remain the same as for 30th November, 1872.



(No. 1.)

APPENDIX F. INTERCOLONIAL RAILWAY.

RESTIGOUCHE DISTRICT.

CONTRACT No. 15.

SCHEDULE showing the total quantities remaining to be done in ROAD BED; quantities, how obtained. Also, showing surplus line cutting to be spoiled. Up to 30th NOVEMBER, 1872.

Station.		Description of Work.	Excavation.			Surplus Line Cutting to Spoil. C. Yards.	Total.		Remarks.
From.	To.		Rock. C. Yards.	Earth. C. Yards.	Catch. C. Yards.		Rock. C. Yards.	Earth. C. Yards.	
17-50		Embankment.		60	60			60	
30-68	44-10	do		12,790	1,200			12,790	
47-10	70-70	do		5,522				5,522	
71-70	77	do		3,500				3,500	
79-90	137-25	do		12,424				12,424	
137-75	145-40	do		411	11			411	
146-10	148-45	do		249				249	
149-05	166	do		249				249	
166	176-18	do		529	148		515	756	
184-83	198-04	Spoil from cutting.		11,578		529		529	
198-04	208-66	Embankment.		18,435				11,578	
208-66	213-38	Spoil from cutting.		16,964		18,435		18,435	
218-01	244-09	Embankment.		21,318				16,964	
253-72	263-15	do		4,180				21,318	
276-88	295-62	Spoil from cutting.		4,139		4,180		4,180	
318-30	332-54	do		16,975		4,139		4,139	
339-10	343-10	Embankment.		16,975				16,975	
381	392	do		786	140			786	
436	452-40	do		575				575	
470-04	487-63	do		9,649	767			9,649	
506-27	510	do		15,171	484			15,171	
510	522-17	do		163				163	
522-17	528-74	Spoil from cutting.		127		127		127	
537-59	541-85	Embankment.		210	210			210	
543-11	558-59	do		63	63			63	
566-36	572	do		3,714	500			3,714	
588-89	600-62	do		750	750			750	
617	624-50	do		54,739				54,739	
635-20	633-04	do		3,651				3,651	
635	639	do		4,215				4,215	
			515	224,102	4,333	27,470	515	224,102	
				192,299					



(No. 2.)

g to be Done.	
aving. b. yds.	Excavation in Founda- tions.
3-0	
7-9	
7-0	
7-0	
32-9	

APPENDIX F.—Continued.

INTERCOLONIAL RAILWAY.

SCHEDULE shewing Total Quantities of 1st and 2nd Class Masonry yet to be done on this Section.

Station.	Description of Structure.	Clear Opening, Feet.	Arch or Box Culvert in Feet.	Total Quantities.				Quantities	
				Masonry.		Paving. Cub. yds.	Excavation in Founda- tions.	Masonry.	
				1st Class, Cub. yds.	2nd Class, Cub. yds.			1st Class.	2nd Class.
32-50	Bridge.			515				Nil.	
71	Bridge.			70				"	
131	Box Culvert.					3-0			Nil.
161-30	Box Culvert.				35-9	7-9			"
236-50	Beam Culvert.				33-0	7-0			"
238	Bridge over Railway.				53-0				"
260	Bridge over Railway.				53-0				"
312-50	Box Culvert.				35-0	8-0			"
329-50	Beam Culvert under Railway.				200-0				"
337-50	Bridge over Railway.				65-0				"
465-50	Bridge over Railway.				69-0				"
535	Box Culvert.				30-6	7-0			"
552-30	Beam Culvert.			1				"	
583-25	Bridge over Railway.				83-0				
				586	657-5	32-9		Nil.	Nil.

7.—Continued.

(No. 2.)

RAILWAY.

et to be done on this Section, 30th November, 1872.

Quantities Executed.				Quantities Remaining to be Done.			
Excavation in Founda- tions.	Masonry.		Paving. Cub. yds.	Excavation in Founda- tions.	Masonry.		Paving. Cub. yds.
	1st Class.	2nd Class.			1st Class.	2nd Class.	
Nil.					515		
"					70		
		Nil.	Nil.				3-0
		"	"			35-9	7-9
		"	"			33-0	7-0
		"	"			53-0	
		"	"			53-0	
		"	"			35-0	
		"	"			200-0	
		"	"			65-0	
		"	"			69-0	
		"	"			30-6	7-0
"					1		
						83-0	
Nil.	Nil.	Nil.			586	657-5	32-9



RESTIGOUCHE DISTRICT.

INTERCOLONIAL RAILWAY.

CONTRACT 15, N.

SCHEDULE of Rock and Earth Excavations—showing the total quantities in this Division, the quantity done, and the quantity remaining to be done, up to 30th November, 1872.

Station.		Total Quantities.			Quantity done.			Quantity to be done.			Spoil.	
From	To	Rock C. Yds.	Earth C. Yds.		Rock C. Yds.	Earth C. Yds.		Rock C. Yds.	Earth C. Yds.		Rock C. Yds.	Earth C. Yds.
0	44-10	6	28,574		6	15,724			12,850			
44-10	77		19,444			10,424			9,022			
77	137-25		27,764			15,340			12,424			
137-25	176-18	1,540	6,052		1,025	4,636		515	1,416			529
176-18	189-04	3,857	39,277		3,857	27,699			11,378			
189-04	213-38		42,171			25,207			16,964			18,495
213-38	244-09		57,750			36,432			21,318			
244-09	297		47,332			47,332						
297	342-89		49,556			31,795			17,761			8,319
342-89	392		38,612			38,037			575			
392	461-51		45,249			35,600			9,649			
461-51	478-60		41,304			26,133			15,171			
478-60	541-85		11,997			11,561			436			127
541-85	572		12,794			8,330			4,464			
572	588-89		87,794			33,055			54,739			
588-89	601		8,738			473			8,265			
601	639											
607-16		5,403	564,408		4,888	367,776		515	196,632			27,470
ABSTRACT.												
0	639	5,403	564,408		4,888	367,776		515	196,632			27,470
		233	15,096		223	7,999			7,097			
			8,781			7,861			920			
			432			144			288			
		5,625	588,717		5,111	383,780		515	204,937		115	4,142
											115	31,612

Add for farm crossings, &c.
Excavations in foundations
do cattle guards
Catch drains and offakes.



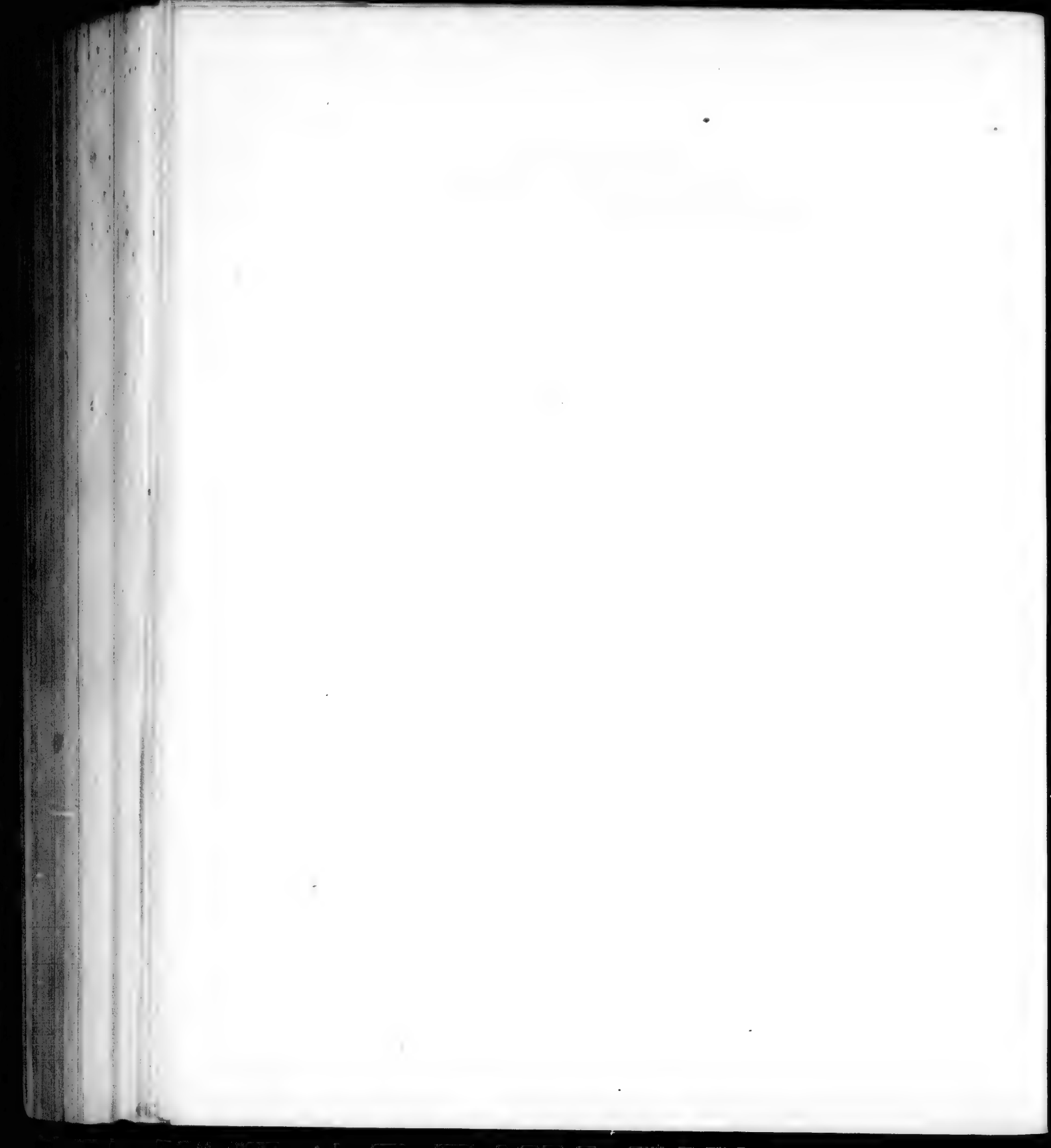
APPENDIX F.—Continued.

(No. 4.)

INTERCOLONIAL RAILWAY.—CONTRACT 15.—N.

Quantities in Catch-waters, &c., to waste.

Station.		Description of Catch.	Quantities.	
From	To		Rock.	Earth.
			Cubic Yds.	Cubic Yds.
162.50		In ditch north.	7	
163	167	" "	3	
	164	" south.	5	
166	173.50	" south 6', base 2 feet be- low formation.	100	2040
198	209	In catch north and south.		367
	244	" south.		20
372	376	" "		20
510	522.20	" north and south.		800
580	589	" " "		600
		OFF TAKES FROM CULVERTS.	115	3847
	107	Off take.		15
	144	" "		20
	402	" "		20
	507	" "		15
	535	" "		15
	552	" "		200
			115	4142



APPENDIX F.—Continued.

(No. 5.)

CONTRACT 15.—INTERCOLONIAL RAILWAY.—DIVISION M.

SCHEDULE shewing Total Quantity in Farm Crossings; quantity done, and quantity remaining to be done, up to the 30th November, 1872.

Station.	Description of Crossing.	Total Quantity c. yds.	Quantity done c. yds.	Quantity to be done c. yds.
1	Farm Crossing, single	132	132	nil
5-90	" " double	235	235	"
11-64	" " single	420	420	"
41-20	" " double	47		47
68	" " single	175	175	
77	" " "	33		33
91-32	" " double	47	47	
102	" " "	180	180	
102	Road Diversion	250	250	
110-73	Farm Crossing, double	180		180
114-05	" " "	134		134
120-86	" " single	90		90
126-56	" " double	180		180
137-72	" " "	47		47
145-04	" " "	100		100
152-20	" " "	344		344
162-76	" " single	100		100
170	" " "	150	100	50
248-95	" " "	100	42	58
253-70	" " "	342	243	99
276-78	" " double	150		150
282	Road Diversion	143	143	
285	Approach to over Bridge	705	705	
290-33	Farm Crossing, double	788		788
294-27	" " "	57	57	
303-03	" " "	66		66
305-54	" " "	47		47
307-86	" " "	24		24
313	" " single	33		33
318-50	" " "	33		33
343-50	" " "	36	36	
352	" " double	47		47
359	" " single	243		243
373-65	" " "	1,391	1,391	
377-50	" " double	47		47
383	" " "	750	500	250
389-90	" " "	500		500
403-50	" " single	33		33
408	" " "	673	673	
413	" " "	700	400	300
420-57	" " double	506		506
425-40	" " single	37		37
432-50	" " "	432	432	
441-65	" " double	1,274	520	754
446	" " single	350		350



APPENDIX F.—Continued.

(No. 5, a.)

FARM CROSSINGS—Continued.

Station.	Description of Crossing.			Total quantity c. yds.	Quantity done c. yds.	Quantity to be done c. yds.
454	"	"	single.....	630		630
461-60	"	"	".....	450	450	
488-85	"	"	double.....	75		75
495-22	"	"	single.....	33		33
504	"	"	double.....	120	80	40
517	"	"	".....	75		75
535-51	"	"	from catch.....	33		33
550	"	"	".....	1,153		1,153
559	"	"	single.....	17		17
568	"	"	double.....	134		134
610-10	"	"	single.....	25		25
				15,096	7,999	7,097



INTERCOLONIAL RAILWAY.—CONTRACT No. 15, N.

LIST OF FOUNDATIONS, &c.

Station.	Description of Foundation.	Total Quantities.		Quantity Done.		Quantity to be Done.	
		Rock, C. Yds.	Earth, C. Yds.	Rock, C. Yds.	Earth, C. Yds.	Rock, C. Yds.	Earth, C. Yds.
14-30	Double Box Culvert.		124		124		Nil.
32	Bridge, Mill Stream.	6	766	6	458	Nil.	308
71	Grant's Beam Bridge.		360		360		Nil.
88-13	Box Culvert.		80		80		"
106-80	Arch Culvert.		474		474		"
131-30	Box Culvert.		54		54		"
143-65	" "		46		46		"
153	" "		64		64		"
161	" "		50		Nil.		50
192-20	Arch Culvert.	163	445	163	445		Nil.
214	Bridge.	10	797	10	797		"
241-98	Box Culvert.		49		49		"
251-32	" "		123		123		"
264-25	" "		133		133		"
268-60	" "		153		153		"
312-60	" "		60		Nil.		60
325-60	" "		365		365		Nil.
329-50	Beam Culvert.		480		Nil.		480
341	Box Culvert.		45		45		Nil.
349-50	" "		148		148		"
356-56	" "		106		106		"
373-25	" "		84		84		"
385-40	Arch Culvert.		362		362		"
401	Box Culvert.		53		53		"
412-25	" "		118		118		"
424	" "		88		88		"
435-60	" "		127		127		"
441	" "		200		200		"
449	Box Culvert.	148	148		148	Nil.	Nil.
456	Bridge.	44	213	44	213	Nil.	Nil.
474	Box Culvert.		155		155		"
481	" "		53		53		"
499-50	Bridge Little River.		317		317		"
507	Beam Culvert.		131		131		"
526	Box Culvert.		58		58		"
535	" "		22		Nil.		22
539	" "		72		72		Nil.
552-32	Beam Culvert.		374		374		"
572	Box Culvert.		50		50		"
605	Bridge Nipissiguit		1,159		1,159		"
617-75	Box Culvert.		33		33		"
626	" "		42		42		"
		223	8,781	223	7,861	Nil.	920



INTERCOLONIAL RAILWAY.

ABSTRACT showing total quantities yet remaining to be done, up to 30th Nov., 1872.

Station.		Description of Work.	Total quantities.	
From.	To.		Rock. Cubic yds.	Earth Cubic yds.
0	639	Total to make up embankments	515	196,632
		Spoil from surplus cuttings.		27,470
		“ in catch waters, &c.	115	4,142
		Balance required for farm crossings		7,097
		Excavation in foundations		920
		“ for cattle guards		288
			630	236,549
		OR SAY		
		Total including line surplus	515	224,102
		Spoil in catch water, &c.,	115	4,142
		Balance required for farm crossings		7,097
		Excavation in foundations		920
		“ for cattle guards		238
			630	236,549



APPENDIX F.—Continued

(No. 8.)

CONTRACT No. 15.

INTERCOLONIAL RAILWAY.

DIVISION N.

List of underdrains and number of lineal feet.

Station.		Description	Lineal feet.
From.	To.		
198.04	208.66	North and South	2,124
297.10	302.48	South	538
277.83	295.28	North and South	3,490
487.63	495.24	North and South	1,522
558.59	566.36	North and South	1,554
572	588.89	North and South	3,378
		Lineal feet	12,606

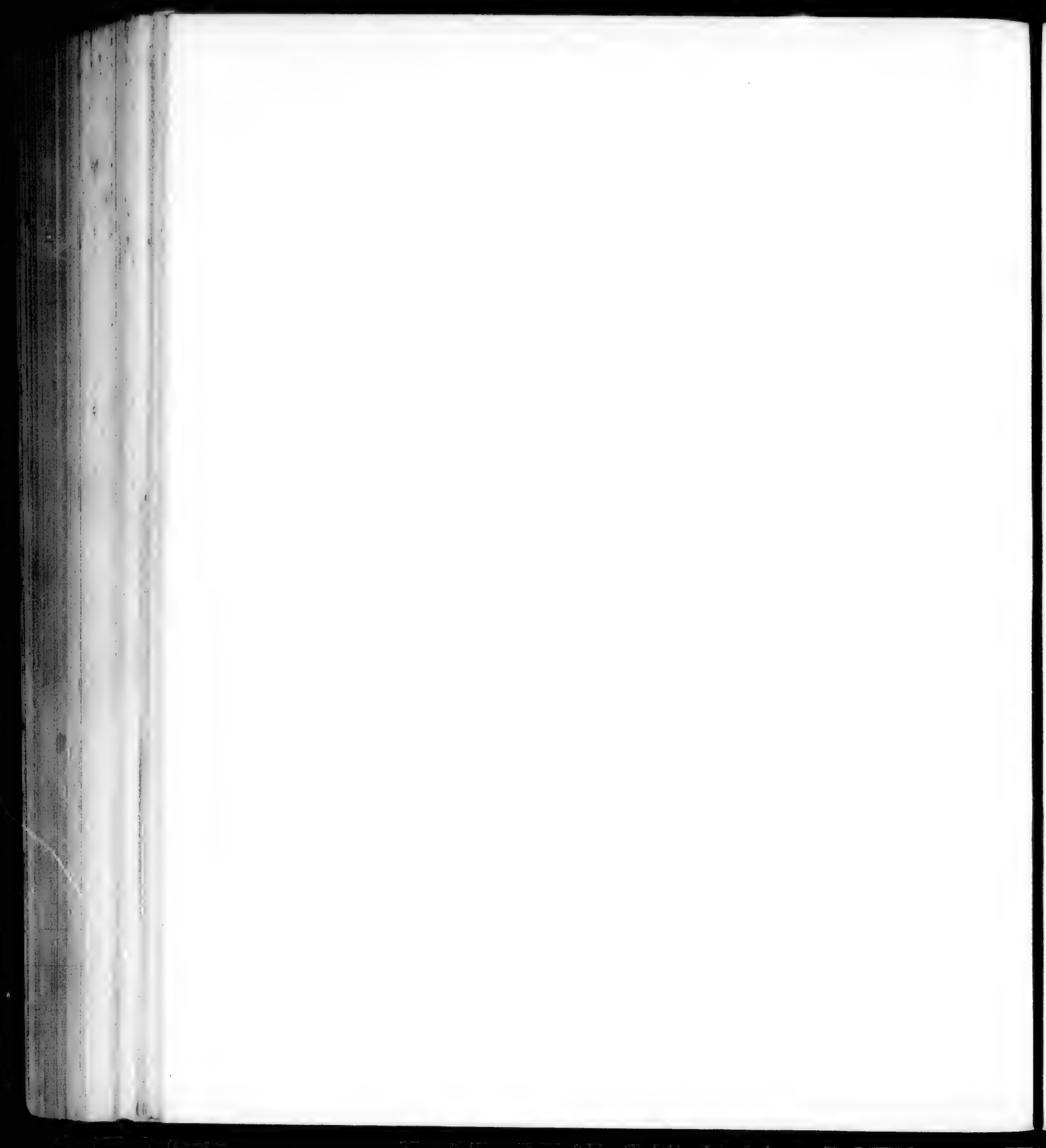


INTERCOLONIAL RAILWAY.

CONTRACT No. 15.

Bill of Work remaining to be done, up to 30th November, 1872.

Quantities.	Description of Work.	Rate.	Amount.
1.5	Acres Grubbing		
196,800	Lineal Feet Fencing		
6,500	" " Snake Fence		
630	Cubic Yards Rock Excavation		
196,632	" " Earth borrow to complete Railway		
7,097	" " For Farm Crossing, etc		
920	" " In Foundations		
288	" " In Cattle Guards		
27,470	" " Spoil from surplus cutting		
4,142	" " From catch waters and off- takes.		
12,606	Lineal Feet underdrains		
110	Cubic Yards Riprap		
586	" " 1st Class Masonry		
657	" " 2nd Class do		
33	" " Paving		
<i>Bridge Superstructure.</i>			
	5 over head Bridges, 560 lineal feet		
	Beam Culverts, 30 ft. clear opening		
<i>Road Crossings and Diversions.</i>			
	4 Public Roads and 4 pr. Cattle Guards		
	25 Single Farm Crossings		
	22 Double do do		
	6 Sign Boards		



CONTRACT No. 15.

APPENDIX F.—Continued

(No. 10.)

DIVISION N.

List of work executed in December.

Station.		From where taken, etc.	Quantities.
From.	To.		c. yds.
198	200	From cutting hauled to emb. west.	1,591
203-50		" " " " east.	2,293
230	236	" side borrow hauled west.	945
419	420	Line cutting hauled east.	1,133
	420-57	Exc. farm crossing hauled east to end.	400
465-12	465-80	Line cutting and slopes hauled west.	2,133
582-75	583	" " in upper lift hauled east.	626
584-20	584-50	" " lower lift " "	470
Total, for month,			9,591



Engineers in Contractors' tender.

QUANTITIES.	RATE.	AMOUNT.
283	\$ 16 20	\$ 4,584 60
26	18 00	468 00
227,500	5 40 & 4 50	12,285 00
82,000	}	127,000 00
60,000		
422,000	0 90	
5,400	0 27	113,940 00
800	4 50	243 00
300	5 40	4,320 00
6,300	4 50	1,350 00
6,700	9 00	56,700 00
880	7 20	48,240 00
.....	6 30	5,544 00
.....		2,700 00
.....		4,976 00
.....		5,400 00
.....		7,200 00
.....		\$395,750 60

APPENDIX G

CONTRACT

Engineer's quantities at prices used by Engineers for progress estimates.

QUANTITIES.	CLASS OF WORK.	RATE.	AMOUNT.	QUAN
283	Clearing and close cutting.....	\$ 12 00	\$ 3,396 00	
26	Grubbing.....	96 00	2,496 00	
227,500	Fencing.....	5 00	11,375 00	22
82,000	Rock excavation.....	0 84	68,880 00	82
60,000	Borrowing 580 to 700.....	0 50	30,000 00	60
422,000	Earth excavation.....	0 14	59,080 00	422
5,400	Under-drains.....	10 00	540 00	
800	Rip-rap.....	1 25	1,000 00	
300	Concrete.....	3 35	1,005 00	
6,300	First class Masonry.....	11 00	69,300 00	
6,700	Second class ".....	8 50	56,950 00	
880	Paving.....	3 35	2,948 00	
	Foundations.....		3,000 00	
	Bridge superstructure.....		5,600 00	
	Road crossings and diversions.....		4,000 00	
	Omissions and contingencies.....		35,327 00	
	Contract sum.....		\$354,897 00	

APPENDIX G.

TRACT No. 9.

estimates. Engineer's quantities at prices in Contractors' tender.

QUANT.	QUANTITIES.	CLASS OF WORK.	RATE.	AMOUNT.
96 00	283	Clearing and close cutting.....	\$ 16 20	\$ 4,584 60
96 00	26	Grubbing	18 00	468 00
75 00	227,500	Fencing	5 40 & 4 50	12,285 00
80 00	82,000	Rock excavation.....	}	127,000 00
00 00	60,000	Borrowing 580 to 790.....		
80 00	422,000	Earth excavation.....	0 27	113,940 00
40 00	5,400	Under-drains.....	4 50	243 00
00 00	800	Rip-rap.....	5 40	4,320 00
05 00	300	Concrete.....	4 50	1,350 00
00 00	6,300	First class Masonry	9 00	56,700 00
50 00	6,700	Second class "	7 20	48,240 00
48 00	880	Paving	6 30	5,544 00
00 00		Foundations		2,700 00
00 00		Bridge superstructure.....		4,976 00
00 00		Road crossings and diversions.....		5,400 00
27 00		Omissions and contingencies.....		7,200 00
97 00		Sum per Contractors' Schedule.....		\$395,750 60

s at prices in Contractors' tender.

SS OF WORK.	RATE.	AMOUNT.
ig.....	\$14 00	\$1,428 00
.....	30 00	180 00
.....	5 40	6,939 00
.....	1 00	6,500 00
.....	0 20	126,000 00
.....	12 00	1,800 00
.....	2 00	1,500 00
.....	5 00	3,000 00
.....	10 00	126,000 00
.....	7 50	30,000 00
.....	5 00	3,500 00
.....	0 30	3,082 00
.....		38,556 00
rsions.....		1,370 00
ncies.....		17,142 00
chedule.....		\$366,997 00

CONTRACT

Engineer's quantities at prices used by Engineers for progress estimates.

QUANTITIES.	CLASS OF WORK.	RATE.	AMOUNT.
102	Clearing and close cutting.....	\$ 12 00	\$1,326 00
6	Grubbing.....	104 00	624 00
122,000	Fencing.....	4 00	5,110 00
6,500	Rock excavation.....	0 83	5,395 00
630,000	Earth excavation.....	0 16	100,800 00
15,000	Under-drains.....	10 00	1,500 00
750	Rip-rap.....	1 70	1,275 00
600	Concrete.....	3 50	2,100 00
12,600	First class Masonry.....	11 00	138,600 00
4,000	Second ".....	8 00	32,000 00
700	Paving.....	3 50	2,450 00
	Foundations.....		2,500 00
	Bridge superstructure.....		37,000 00
	Road crossings and diversions.....		5,000 00
	Omissions and contingencies.....		33,310 00
	Contract sum.....		\$363,520 00

CONTRACT No. 15.

estimates.

Engineer's quantities at prices in Contractors' tender.

AMOUNT.	QUANTITIES.	CLASS OF WORK.	RATE.	AMOUNT.
\$1,326 00	102	Clearing and close cutting.....	\$14 00	\$1,428 00
624 00	6	Grubbing	30 00	180 00
5,140 00	122,000	Fencing	5 40	6,939 00
	6,500	"		
5,395 00	6,500	Rock excavation.....	1 00	6,500 00
100,800 00	630,000	Earth Excavation.....	0 20	126,000 00
1,500 00	15,000	Under-drains	12 00	1,800 00
1,275 00	750	Rip-rap.....	2 00	1,500 00
2,100 00	600	Concrete	5 00	3,000 00
133,100 00	12,600	First class Masonry.....	10 00	126,000 00
32,000 00	4,000	Second class Masonry.....	7 50	30,000 00
2,450 00	700	Paving	5 00	3,500 00
2,500 00		Foundations	0 30	3,082 00
37,000 00		Bridge superstructure.....		38,556 00
5,000 00		Road crossings and diversions.....		1,370 00
33,310 00		Omissions and contingencies		17,142 00
\$363,520 00		Sum per Contractors' Schedule.....		\$366,997 00

CONTRACT No. 9.

QUANTITIES of all Works executed up to 31st January, 1871.

STATION.		Description of work.
From	To	
CLEARING.		
25	1109	Extending over whole Contract 200 acres.
CLOSE CUTTING.		
		6.50 "
269	518	3.50 "
584	1109	
Total Clearing and Close Cutting		210.00 "
GRUBBING.		
189	519+19	" 4.50 acres.
677	1109	" 14.50 "
Total Grubbing.....		19.00 "
FENCING.		
Extending over whole Contract in detached portions.		
Total.....		9000 lineal feet

CONTRACT No. 9—Continued.

Detailed Quantity of Rock and Earth-Work.

STATION		Description of Work.	Cubic Yards Excavation.	
From	To		Earth.	Rock.
124	129	Line Cutting	741	
126	127	"		109
139+15	137+47	"		57
137	140	"	594	
150	151	"	590	
154	166	"		387
164	171	"	2456	
196	198	"	188	
216	221	"	486	
217	221	"		1265
222+37		Cover Pit Excavation	173	
223	224	Line Cutting		239
231	233	"	271	
243	245	"	789	
266	277	Ditch, South	1895	
275+58		Cross Drain and Outfall	21	
278	280	Line Cutting	217	
281	408	Ditching North and South	10361	
365+40		Cross Drain and Outfall	34	
366+42		"	19	
378	380	Drain	101	
381		Cross Drain and Outfall	48	
398		"	75	
449	453	Line Cutting	534	
464	475	Drain	61	
474		Cross Drain and Outfall	120	
479	486	Line Cutting	2374	
492	508	Ditch, South	2670	
528	532	Line Cutting		1843
530	535	"	2842	
540	552	Ditching North and South	6263	
552		Cross Drain and Outfall	32	
560+37	560+61	Line Cut	7	
560+68	561+49	"	36	
560+61	562+12	"		223
561+70	561+60	"	28	
562+32	563+00	"	308	
569	569+00	"		158
591+25	592+13	Ditch, South	209	
613+10	613+50	Line Cutting		42
614+18	617+60	"	518	
618	618+00	"	160	
621		Cross Drain	8	

APPENDIX H.—Continued.
CONTRACT No. 9.—Continued.

3

STATION.		Description of Work.	Cubic Yards Excavation.	
From	To		Earth.	Rock.
622+76	623+16	Line Cutting		216
623+12	625	"	315	
624+06	624+46	"		61
625+40		Cross Drain	8	
669+03	671+44	Line Cutting	211	
670+44	670+90	"		112
689	692+19	Ditch South	517	
686+80	693+80	Drain South	101	
678+30		Cross Drain	44	
692+60	678+50	Ditch South	1336	
698+50		Cross Drain	66	
712+75		Drain South	13	
712	718+00	Line Cutting	1977	
712+72	715+0	"		871
720	721+07	"	137	
722+25		Cross Drain	26	
723+37	724+12	Line Cutting	55	
724+12	724+30	"		17
724+85	726+12	Drain South	28	
726+12	7+3	"	216	35
725+61		Cross Drain	225	
736+68		"	131	
736+67	744+13	Drain South	87	
744+37	744+74	Line Cutting		30
745+20		Cross Drain	133	
745+18	749+06	Drain South	37	15
746+18	750+17	Line Cutting	2494	
747+85	750+73	"		1068
750+56	753+75	"	597	
753+57		Cross Drain	108	
758+03	758+90	Line Cutting	209	
757+35	758+03	"		704
759		Drains, North and South	7	
762+22	765+27	Line Cutting		1448
762+33	768+60	"	3955	
766	766+53	"		331
768+60	774	"		6111
772+33	775	"	621	
780		Road Diversion Drains	51	
777	781+28	Drain South	80	
781+28	785+98	Ditch South	2191	
781+50	785+65	Ditch North	1139	
786+50		Drain from Culvert	175	75
786+50		Culvert Pit and Inlet	352	
786+50	789+84	Ditch and Drain South	1146	

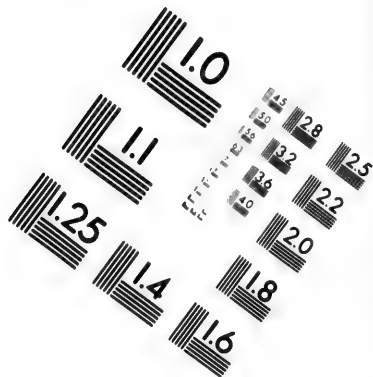
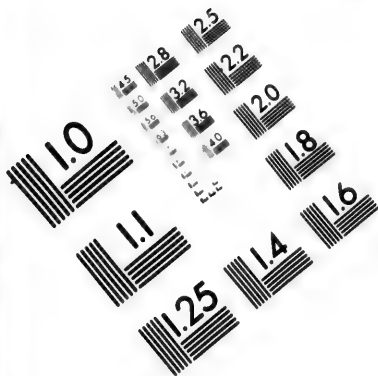
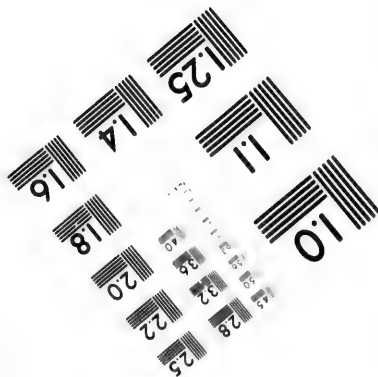
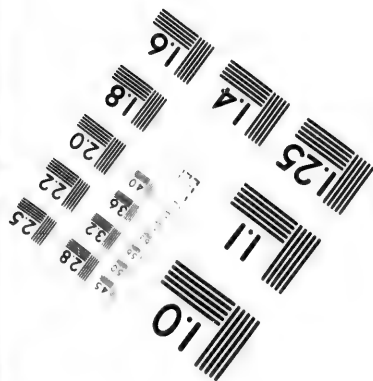
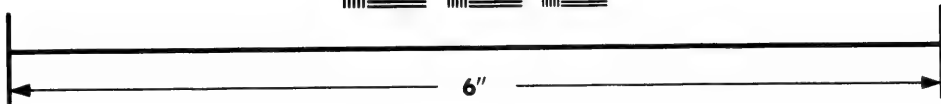
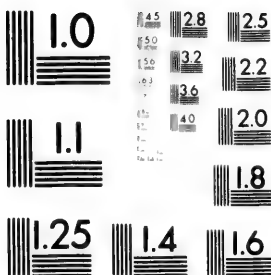


IMAGE EVALUATION TEST TARGET (MT-3)

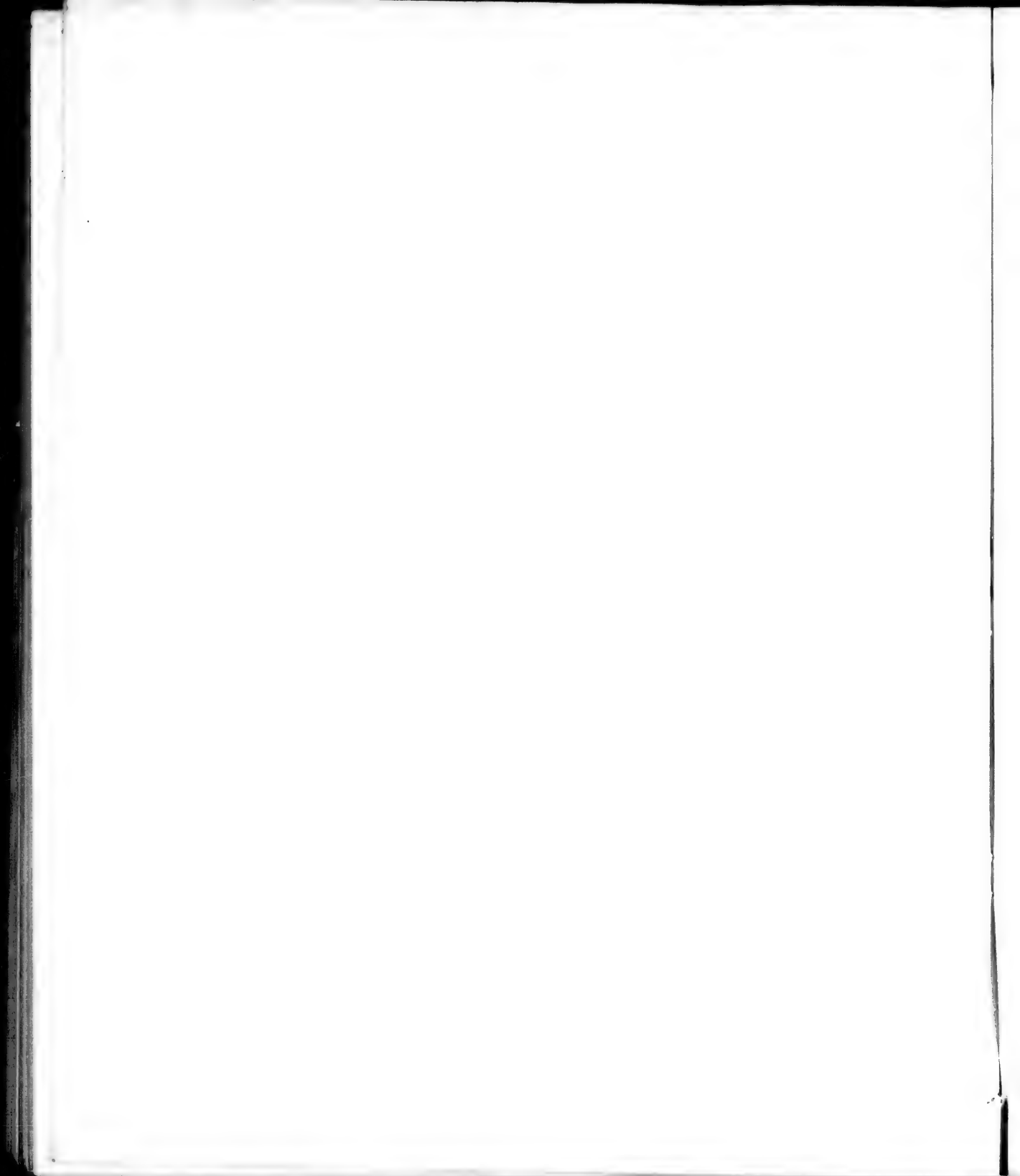


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Corporation**

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

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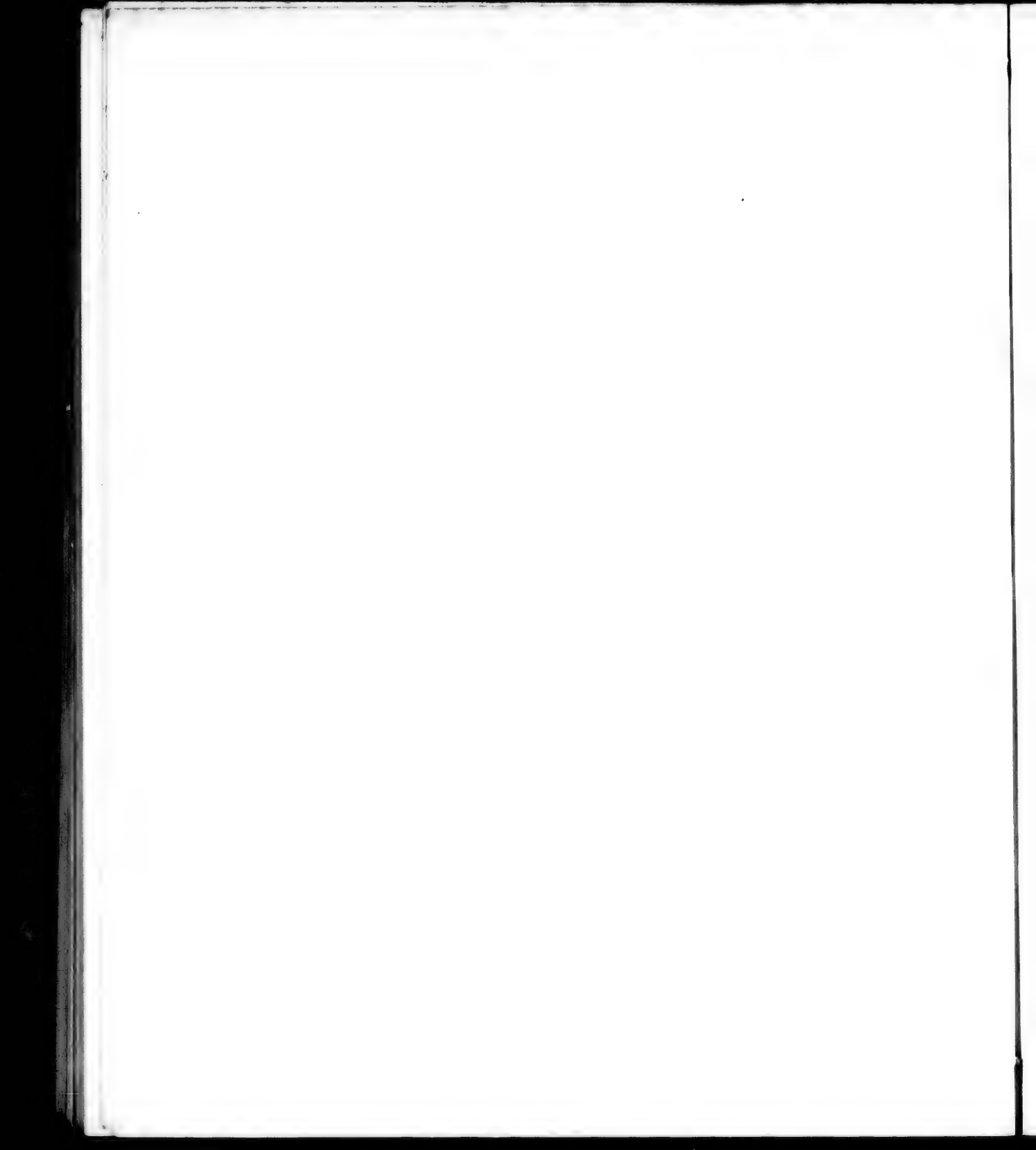
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APPENDIX H.—Continued.
CONTRACT No. 9.—Continued.

4

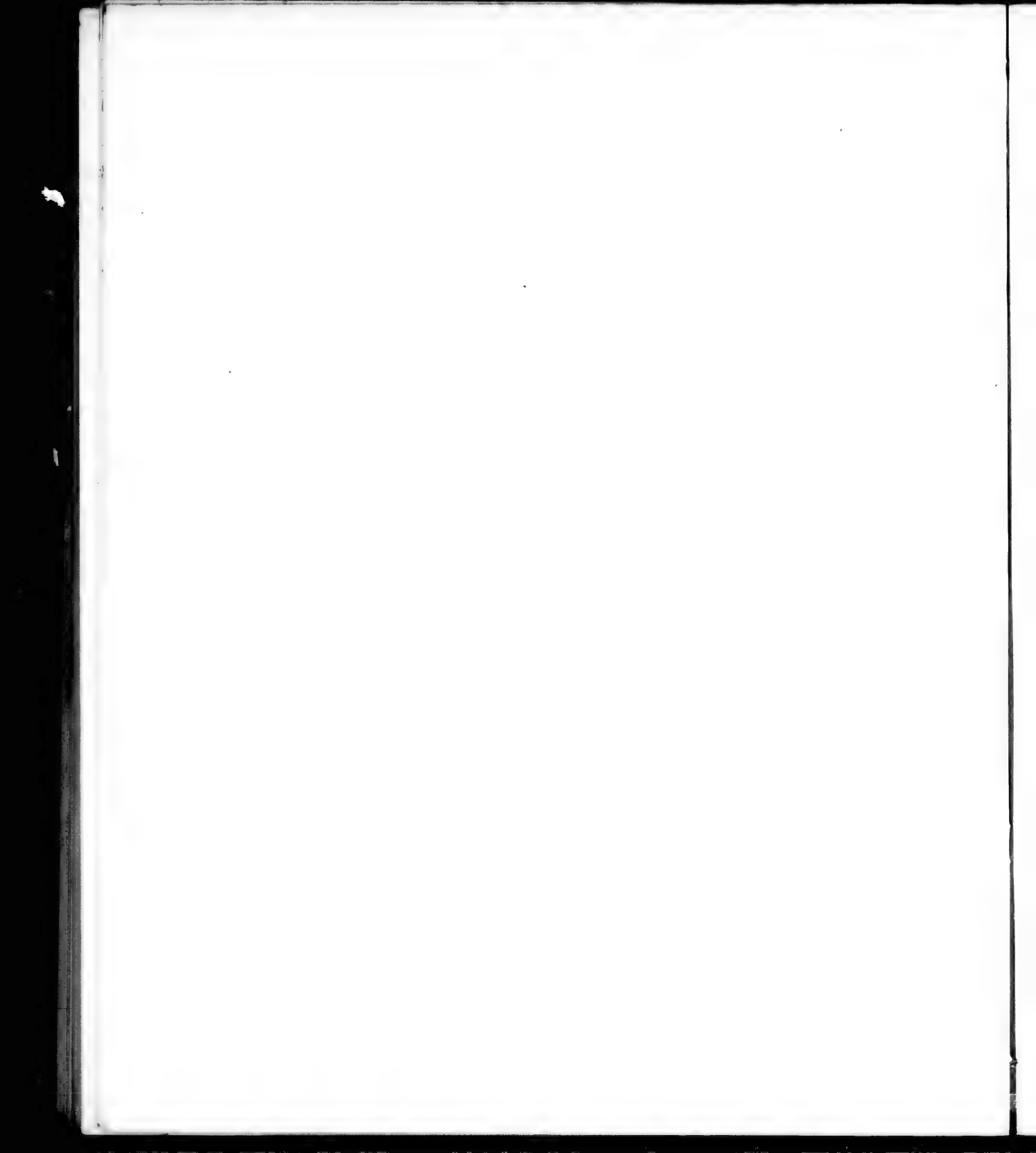
STATION.		Description of Work.	Cubic Yards excavated.	
From	To		Earth.	Rock.
787+50	789+58	Ditch, North.....	748	
789+84	796+61	" South.....	5666	
796+82	805+09	" ".....	2322	
807+55		Foundation for Bridge.....	117	
802	805+11	Ditch South.....	58	
810+56	812+24	Line Cutting.....	683	
817+94	818+78	" ".....	98	
821+78	830+48	Ditch South.....	1734	
824+70		Cross Drain.....	134	
825	830+37	Ditch North.....	1103	
832+30	831+72	" ".....	503	
835		Cross Drain.....	26	
831+50	843+83	Ditch South.....	2964	
846	847+73	Line Cutting.....	76	
850+56	851+85	" ".....	30	
852+57	864+87	Ditch South.....	3262	
864+40		Cross Drain.....	40	
864+40	868+15	Ditch South.....	911	
870+60	880+21	" ".....	6215	
889+56	894+20	" ".....	1970	
894+74	900+42	" ".....	1453	
896+92	898	Ditch North.....	118	
898	900	Drain ".....	11	
900		Cross Drain.....	22	
901+50	916+25	Ditch South.....	2842	
904	909+28	" North.....	1174	
909+30		Cross Drain.....	17	
916+82	933	Ditch South.....	5387	
920+62	931+92	" North.....	463	
932+12	932+85	" ".....	184	
931+96	932+14	Drain ".....	7	
932+98	933+21	" South.....	12	
933		Culvert Pit.....	60	
933		Cross Drain.....	76	
933+28	946+89	Ditch South.....	4004	
946+46	953	Line Cutting.....	463	
956+05	963+34	Ditch South.....	1418	
962+50		Cross Drain.....	30	
963+36	968+05	Line Cut and Borrow Pit.....	1628	
968+24	974+42	Ditch South.....	2142	
973+23	993+50	" ".....	5759	
974+41	975+26	Drain South.....	45	
980		Cross Drain.....	91	
980+05	982	Ditch North.....	187	
989	992+16	Drain South side Ditch.....	195	



APPENDIX H.—*Continued.*
 CONTRACT No. 9.—*Continued.*

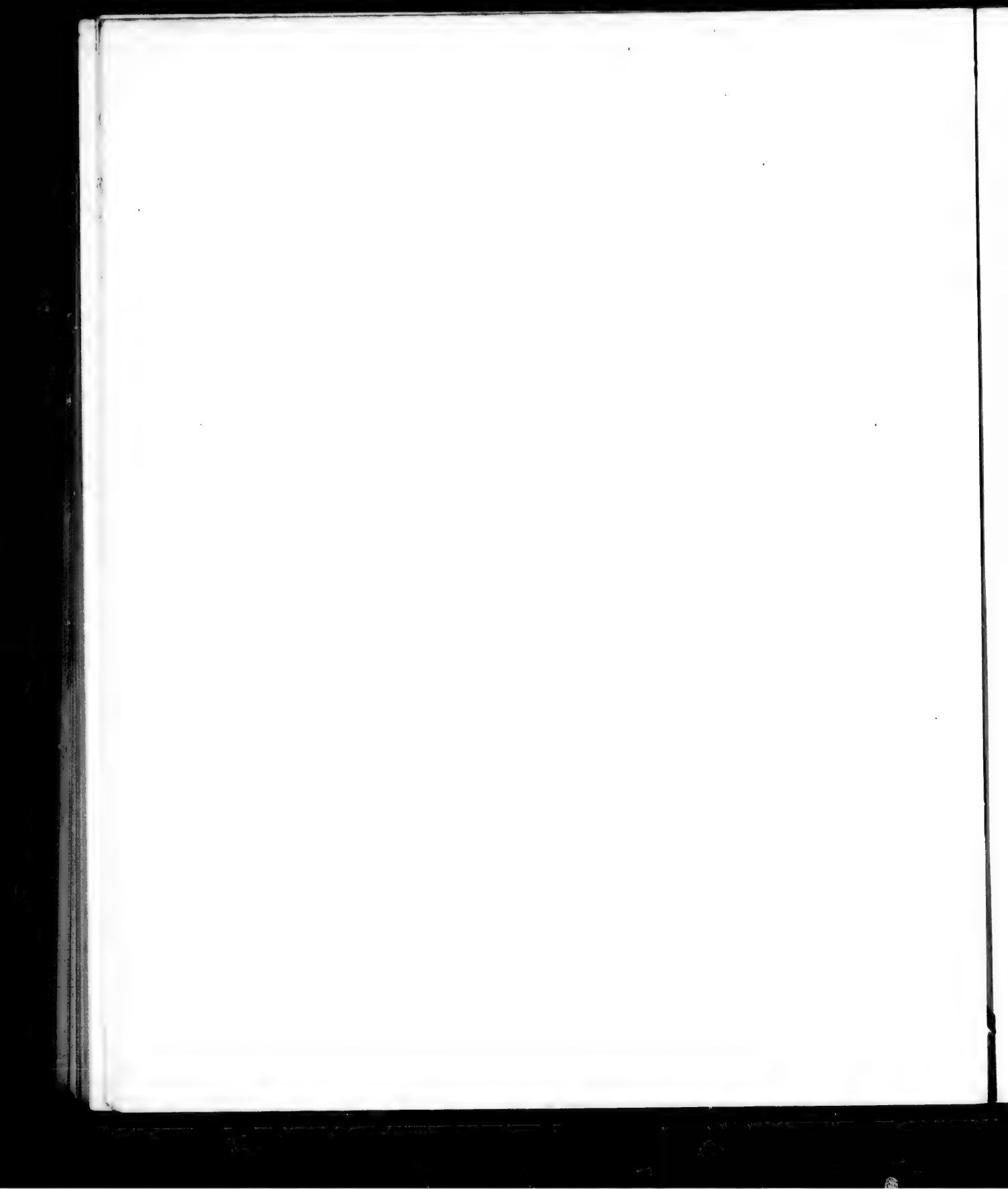
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STATION.		Description of Work.	Cubic Yards Excavated.	
From	To		Earth.	Rock.
995+15	998	Line Cutting	177	
1003+70	1022	Drain South.....	262	
1003+52	1022+06	" North	275	
1009	1025	Line Cutting	1780	
1026	1052+85	Ditch South	6716	
1047+52	1050	Borrowing Pit South	1723	
1038+30	1041	Ditch North	364	
1041+48	1051+70	Ditch and Drain North.....	909	
1052+77		Cross Drain.....	74	
1053	1074+62	Drain and Ditch South.....	5679	
1059+14	1063+90	Ditch North.....	1133	
1060	1061	Borrowing Pit	635	
1060+36		Cross Drain.....	42	
1071	1072	Ditch North	58	
1074+64		Cross Drain.....	18	
1074+70	1075+33	Ditch North	33	
1074+30	1083+21	Drain South.....	194	
1074+46	1074+70	" North	49	
1078+46		Cross Drain.....	34	
1082+28	1083+08	Drain North.....	12	
1083+20		Cross Drain	151	
1083+30	1109	Ditch South	8135	
1085+88	1091+52	" North	1594	
1090+48		Cross Drain.....	32	
1102+20		"	32	
0	2+90	Borrow from Contract No. 15	366	
		Total	141027	15417



ABSTRACT OF MASONRY.

Station.	Description of Structure.	1st Class. Cubic Yds.	2nd Class. Cubic Yds.	Paving. Cubic Yds.
222+37	Box Culvert, 2'6" + 3'0"		134	11
786+50	6 feet Arch Culvert		260	14
896+50	Beam Bridge at Public Road	200		
	Total Masonry up to 31st January	200	394	25
	Materials delivered up to 30th November, 1870.			
786+50	and 806.50 Dressed Free Stone	40		
"	" Rough "	95		



CONTRACT No. 15.

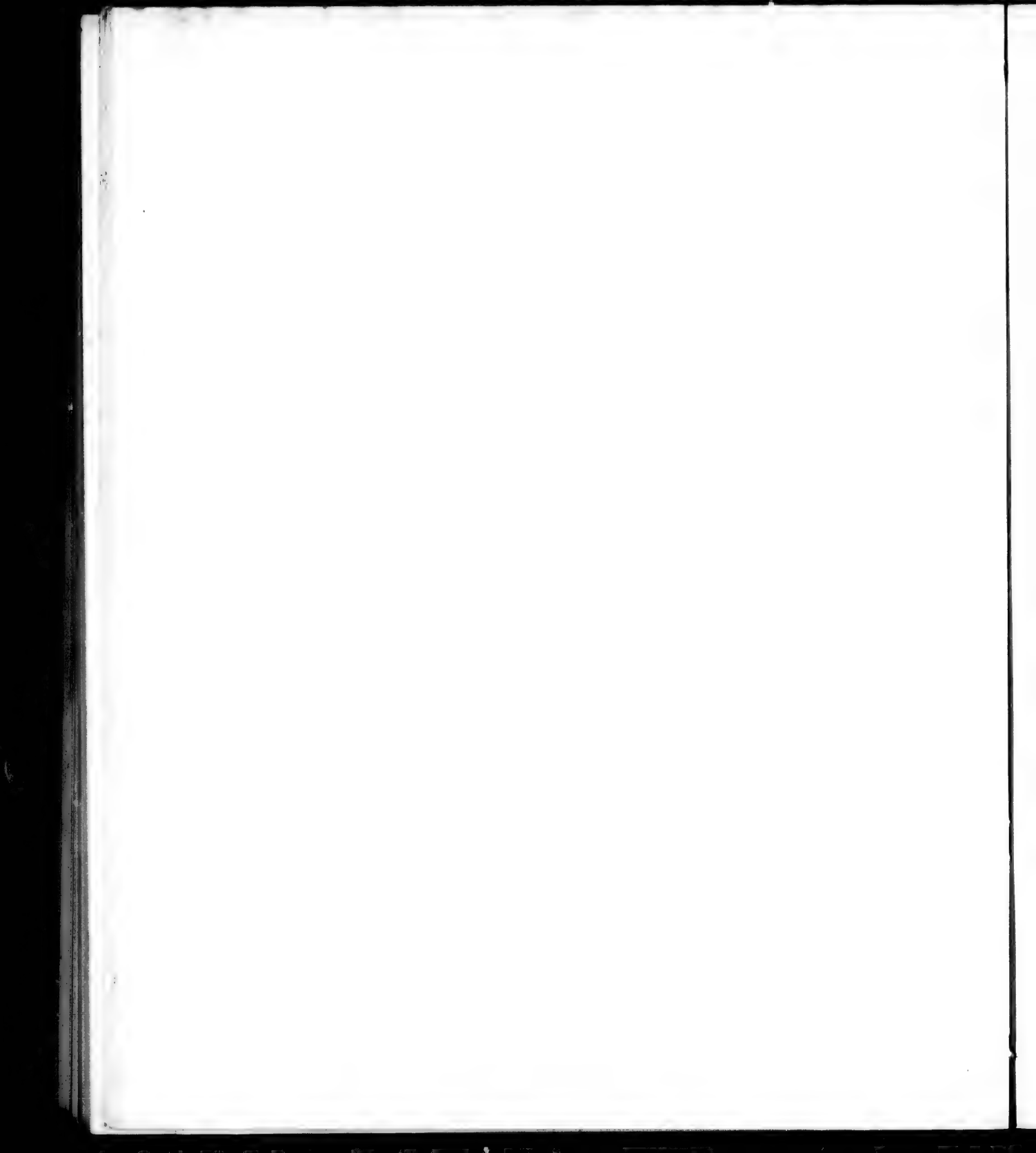
Detailed Quantities of Excavations done up to 31th January, 1871.

STATIONS.		Description.	Quantities.	
From	To		Earth.	Rock.
0	7+50	Ditch (N.).....	839	665
0+40	4	(S.)	183	
93+20	103	(N.)	1,809	
101	103+10	(S.)	426	
107+35	110+53	(S.)	830	
107+70	114+10	(N.)	880	
182+26	184+23	Cutting Rock.....		
"	"	" Earth.....	183	
198+04	201+50	" 2 lifts.....	12,765	
204+65	208+70	" 3 ".....	13,183	
213	218+50	Excavation for Bridge foundation.....	218	
222+28	232	Catch water drain and ditch.....	539	
230+85	244+72	Cutting gulleled (wide).....	16,442	
249+50	253+72	Ditch (N. and S.).....	437	
253+70	257+56	Cutting gulleled.....	8,817	
261+60	263+08	" ".....	1,375	
268+25	276	Ditch (N.).....	482	
306	308	Vegetable matter removed.....	204	
311+50	312+60	" ".....	451	
308	311+05	Cutting and ditch.....	1,586	
312+40		Out-fall drain.....	53	
313+02	318+30	Cutting.....	5,510	
312+40	319+05	Ditch through cut (N. and S.).....	1,798	665
318	323+40	" (S.).....	452	
318+20	324	" (N.)	510	
326+40	332	" (S.).....	845	
325+70	332	" (N.).....	734	
332+54	335+90	Cutting gulleled (36 ft. wide).....	9,394	
338+35	339+10	" ".....	528	
339	342+60	Ditch (S.).....	288	
339+50	341+16	" (N.).....	87	
354	356+30	" (S.).....	126	
354	356+58	" (N.).....	137	
356+45	361	" (S.).....	456	
359+85	361	" (N.).....	71	
361+50	364+25	Cutting gulleled.....	2,225	
378+68	381+10	" ".....	1,527	
382+75	384	Ditch (N.).....	279	
383	384	" (S.).....	362	
387+62	389+50	" (N.).....	221	
387	390	" (S.).....	450	
391+54	396+22	Cutting gulleled (100 feet wide).....	8,004	665
390	391	Ditch (N. and S.).....	301	
408+44	409+	Cutting gulleled.....	1,169	
411		Ditch (N. and S.).....	135	
417+12	418+80	Cutting.....	197	
458		Ditch.....	208	
461+46	462+95	Cutting gulleled.....	2,129	
466+30	470+04	" ".....	5,161	
474		Ditch (S.).....	697	
"	474	Culvert foundation.....	155	
487+63	493+40	Cutting gulleled.....	5,997	
585+55	588+89	" 2 Lifts.....	12,661	
			124,516	
		Allowance for 2½ days early measure- ment.....	484	15
			125,000	680

(Signed.)

GEO. E. McLAUGHLIN,

Asst. Engineer.



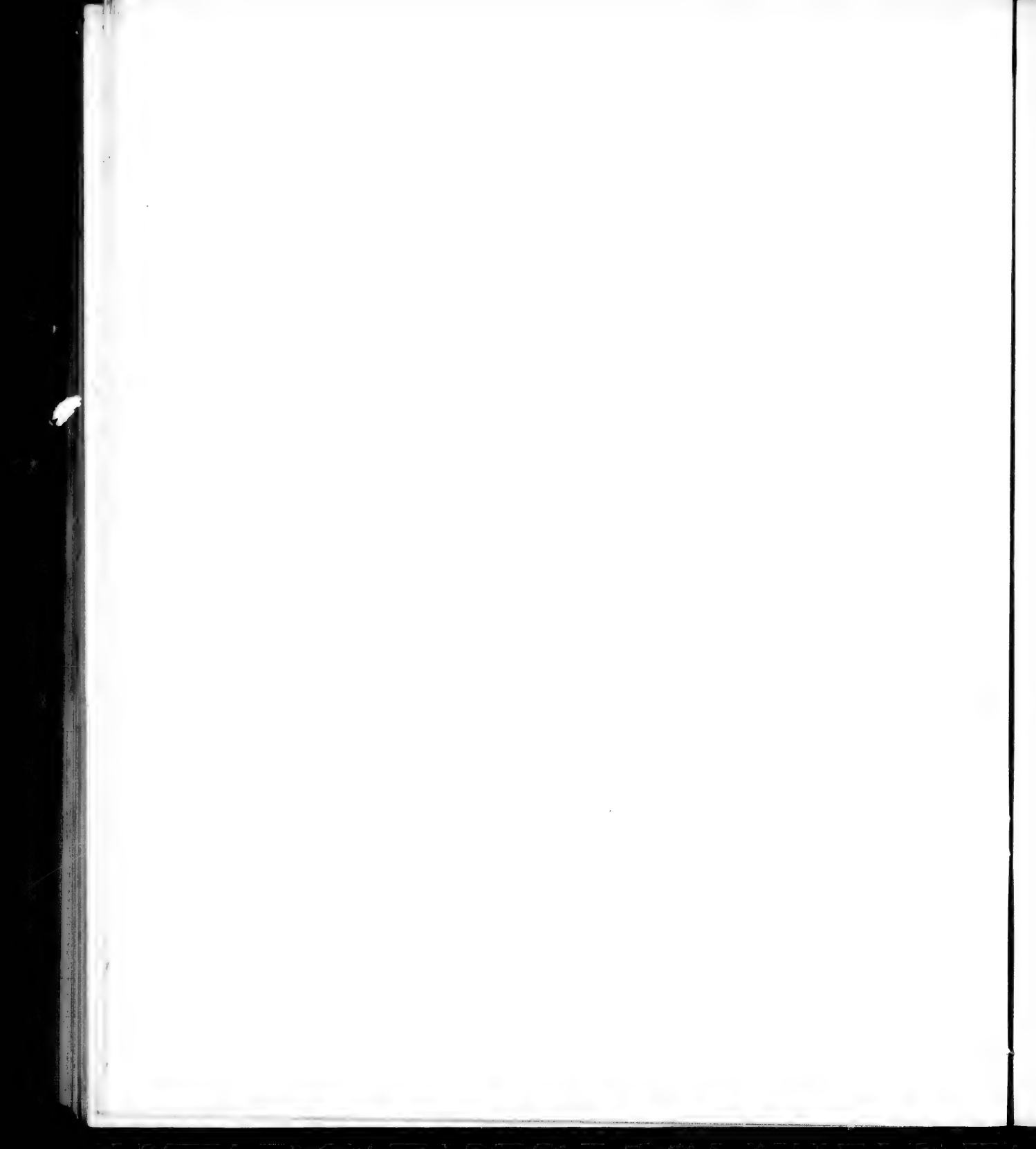
CONTRACT No. 15.

Total Estimate of work done, and materials furnished up to 31st January 1871.

STATION.		Cuttings.		Masonry.			Stone.		Drains.	Clearing.			REMARKS.
From	To	Earth.	Rock.	1st C.	2nd C.	Paving.	Quarried.	Dressed.		Cleared.	Grubbed.	Close cut.	
0	24 25										0 70		Total amount executed to date.
95	102 }										1 30		
112	127 }												
243+94									50				
253+10									180				
"									53				
"									23				
312+40									42				
460+30									50				
474													
600+60				74	199	5							
							82						At Station 356. Rough Waters. Big River Quarry. Little River. Meehan's Field and Bertrand's Wharf. Tête à Gauche River. = 56 finished, and 40 piled and burnt = 3 done.
							242	236					
							226	354					
							13	46					
								33					
								116					
										86			
												0 41	
		125000	680	74	199	5	563	785	348	86	2 00	0 41	
		c. yds.	c. yds.	c. yds.	c. yds.	c. yds.	c. yds.	c. yds.	1 feet.	acres.	acres.	acre.	

(Signed,)

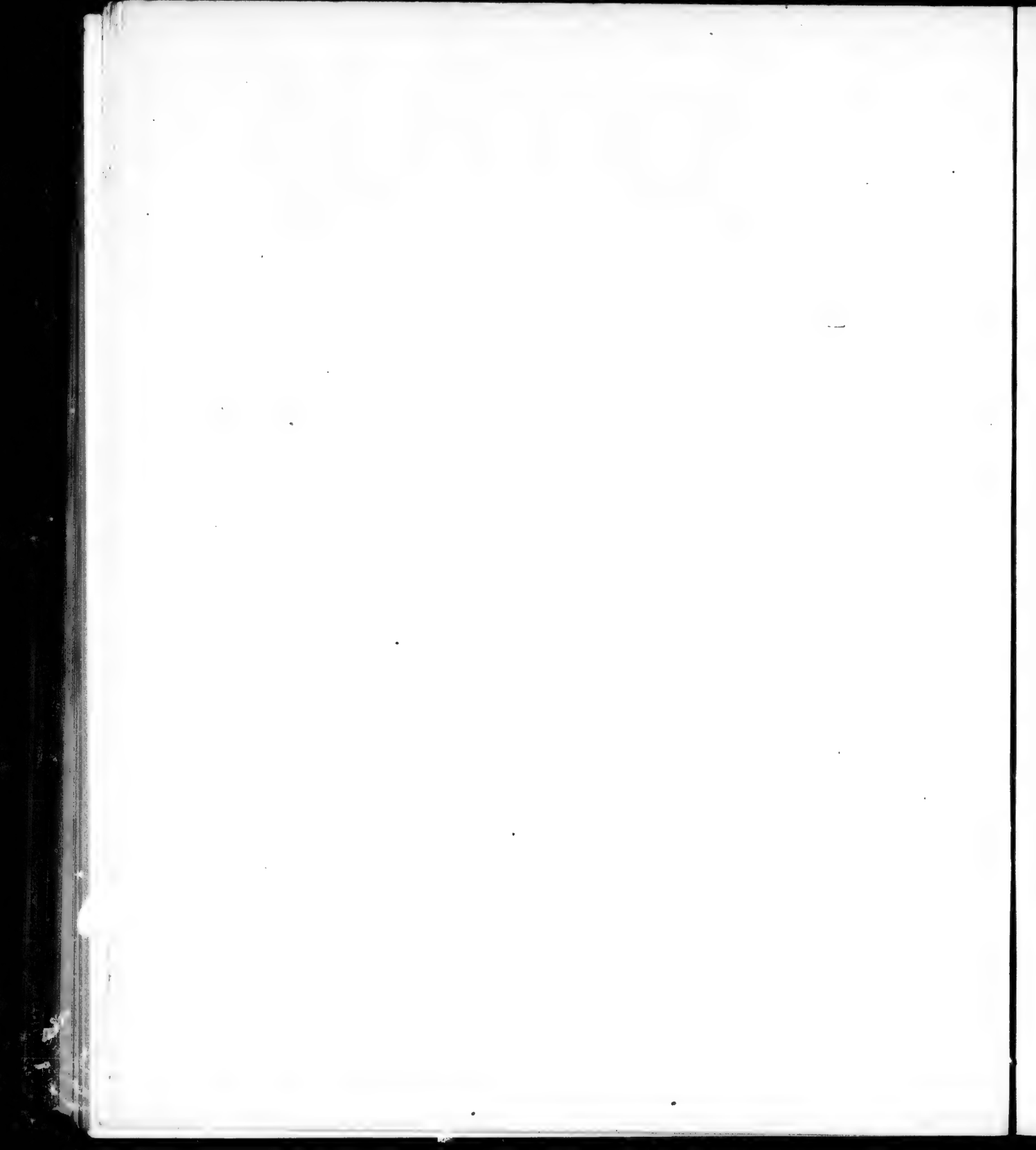
GEO. E. McLAUGHLIN,
Assistant Engineer.



APPENDIX J.

Cost of Rock and Earth Work. Contract No. 9. Obtained from notes of force employed. From July, 1870, to 30th November, 1870. (No. 1)

Station.		Total Quantity.		Total Cost.	Cost per C. Yard.	Nature of Soil, &c.	Name and Previous Occupation of Foreman.	Remarks.
From.	To.	Rock. C. Yard.	Earth. C. Yard.					
165	171		1,658	\$1,049 80	\$0 63½	Common Earth.	Doyle—farmer, from the neighborhood—no experience.	Line cutting in woods; average haul 450 feet; work done in Sept. and Oct.
217	221	401	289	878 72	2 19	Hard slate.	David Murray, formerly on Section No. 6.	Line cutting in woods; average haul 300 feet; work done in Oct. and Nov.
"	"		10,062	63 58	0 22	Common earth.	F. Lizott. J. Clancy Blais, farmer—no experience.	Side-ditching in woods; work done in Aug., Sept. and Oct.
266	408			3,428 50	0 34	Gravel and earth.	James Chalmers, farmer—no experience.	Line cutting in woods; average haul 450 feet; work done in Sept. and Oct.
449	453		534	341 40	0 64	Stiff clay.	Edward Kane, farmer—no experience.	Line cutting in woods; average haul 550 feet; work done in Oct. and Nov.
479	482		1,479	1,049 60	0 71	Common earth.	Isaac Fournier & Alphonse Couillard—no experience.	Side-ditching part through woods; work done in Oct. and Nov.
492	519		2,670	1,000 50	0 37½	Gravel and clay.	Daniel McDermot, formerly employed on Western Extension.	Line cutting in woods; average haul 800 feet; work done in July, August and Sept. 48 kegs powder charged.
529	533	674		1,511 80	2 24½	Hard rock, sometime.	Stephen Manyweather, (some experience) and Couillard, (no experience.)	Side-ditching in woods; work done in July, Aug. and Sept.
540	552		4,966	2,057 00	0 41-4	Clay and Gravel.	Grammont, an old French soldier.	Line cutting in woods; average haul 400 feet; work done in Aug. and Sept.
"	"		1,297	1,230 50	0 93½	Chiefly shale.	McDonald, (no experience)	Line cutting in woods; average haul 350 feet; work done in July, Aug. and Sept.
712	714		1,529	843 90	0 55	Common earth.	Stephens and Wilkins, sub-contractors, both have good knowledge of rock work.	Line cutting in woods; average haul 1,500 ft.; work done in June, July, Aug., Sept. and Oct. 80 kegs powder charged.
746	750	532		757 60	1 42	Hard rock.	Morrisette, foreman, mason.	Culvert pit excavation.
"	"		2,742	1,563 50	0 57	Gravel.	"	Road Bridge foundation.
762	775	3,498	1,958	5,981 58	1 71	Very hard rock.	Daly, farmer—no experience.	Side-ditching through cleared land; work done in July, Aug., Sept. and Oct.
786	806		352	326 1-	0 16½	Gravel.	Doucette, farmer—no experience.	Line cutting and borrowing from widening cut; work done in July and Aug.
806	870		117	192 00	0 54½	Clay and shale.	Cormier and Doucette—no experience.	Side-ditching through woods; work done Aug., Sept. and Oct.
870	920		1,549	59 00	0 50	Hard clay and gravel	H. Blais, Farmer—no experience.	Line cutting, and widening for borrowing; work done in July, Aug., Sept. and Oct.
963	968		1,319	3,491 60	0 22½	Gravel.		
980	993		4,859	430 40	0 32½	Gravel.		
1,010	1,025		2,317	1,474 80	0 30½	Gravel.		
				917 20	0 39½	Gravel.		



[No. 2.]

ate of Wages paid.

APRIL, 1871.					
Horse.	Powder.	Total Quantity Rock.	Total Quantity Earth.	Cost per C. Yd.	Total Cost.
\$ c.	\$ c.				
1 00	1 50				
0	24	827			
31	2	168	315		

MAY, 1871.					
\$ c.	\$ c.				
1 00	4 50				
0	12	385	91		
0		43	272		

JUNE, 1871.					
\$ c.	\$ c.				
70	4 50				
	6	348	111		
3	10	457	113		

JULY, 1871.					
\$ c.	\$ c.			\$ c.	\$ c.
70	4 50				
	4	130	Nil	1 89	246 00
	Nil	Nil	295	0 70 1/2	207 30
	6	370	552	2 00	1077 30
	Nil	135	992	0 64 1/2	722 70
	"	Nil	768	0 43 1/2	334 50
	"	"	1699	0 53 1/2	906 30

Hard Limestone Rock.
Light Clay Soil.
Hard Shaly Rock.
Light Clay Soil.
do do
Borrowpit do do

NG FOR JULY, 1871.

Nil.		1,071	0 46 1/2
"		2,131	0 44
"		2,283	0 33 1/2

APPENDIX

CONTENTS

Cost of Excavations—Compiled from Measurements

Stations.		DECEMBER, 1870.							
From	To	Foremen.	Mechanics.	Labourers.	Horses.	Powder.	Total Quantity Rock.	Total Quantity Earth.	Total Cost.
		\$ c. 1 30	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50			\$ c.
532	528	26	52	376	47	18	433		649 20
535	528								
486	479	17		261	78				411 30
246	243	17		160	24				223 90
221	217	26	37	369	51	13	397		603 60
171	150	47		527	154		269		843 90
139	124	52		400	126				679 60

JANUARY, 1871.

		\$ c. 1 30	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50			\$ c.
532	528	20	39	230	32	12	202		423 70
535	528								
486	479								
246	243								
221	217	21	42	450	70	15	447	199	724
171	150								
139	124	41		330	72	6	166	142	533 70

FEBRUARY, 1871.

		\$ c. 1 30	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50			\$ c.
532	528	16	27	241	41	12	95	183	395 10
535	528								
486	479								
246	243								
221	217	24	36	377	113	17	404	324	724 30
171	150								
139	124	40		389	73	15	309		632 30

MARCH, 1871.

		\$ c. 1 30	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50			
221	194	48	48	802	233	48	1,015		
139	124	48	13	662	171	11	516	252	

There was no powder used in getting out this Rock.

APPENDIX J.--Continued.

[No. 2.]

CONTRACT No. 9.

Compiled from Measurement of Work done, Time of Men, and Rate of Wages paid.

Stations.		APRIL, 1871.								
From	To	Foremen.	Mechanics.	Labourers.	Horses.	Powder.	Total Quantity Rock.	Total Quantity Earth.	Cost per C. Yd.	Total Cost.
		\$ c. 1 50	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50				
221 139	194 124	46 23	46 17	594 258½	190 93½	24 2	827 168	315		
MAY, 1871.										
		\$ c. 1 50	\$ c. 2 00 and 1 00	\$ c. 1 00	\$ c. 1 00	\$ c. 4 50				
221 139	149 124	36 15	38 17	370 124	100 50	12	385 43	91 272		
JUNE, 1871.										
		\$ c. 1 50	\$ c. 2 00 and 1 00	\$ c. 1 20	\$ c. 1 70	\$ c. 4 50				
223.50 313	224.73 221	27 29	10 31	296 322	118	6 10	348 457	111 113		
JULY, 1871.										
		\$ c. 1 50	\$ c. 2 00 and 1 00	\$ c. 1 50	\$ c. 1 70	\$ c. 4 50			\$ c.	\$ c.
225 234 221 92 486 413	223 227 194 88 479	16 19 44 28 15 26	29	170 98 495 359 175 472	136 204 147 60 177	4 Nil 6 Nil Nil	130 Nil 370 135 768 1699	Nil 295 552 992 Nil	1 89 0 70½ 2 00 0 64½ 0 43½	246 00 207 30 1077 30 722 70 334 50 906 30
SIDE DITCHING FOR JULY, 1871.										
474 410 104	460 280 92	42 61 37		354 705 591	8 Nil "		1,071 2,131 2,283	0 46½ 0 44 0 33½		

There was no powder used in getting out this Rock.

Hard Limestone Rock.
Light Clay Soil.
Hard Shaly Rock.
Light Clay Soil.
do do
Borrowpit do do

There was no powder used in getting out this Rock.



Cost of Masonry on Contract No. 9.

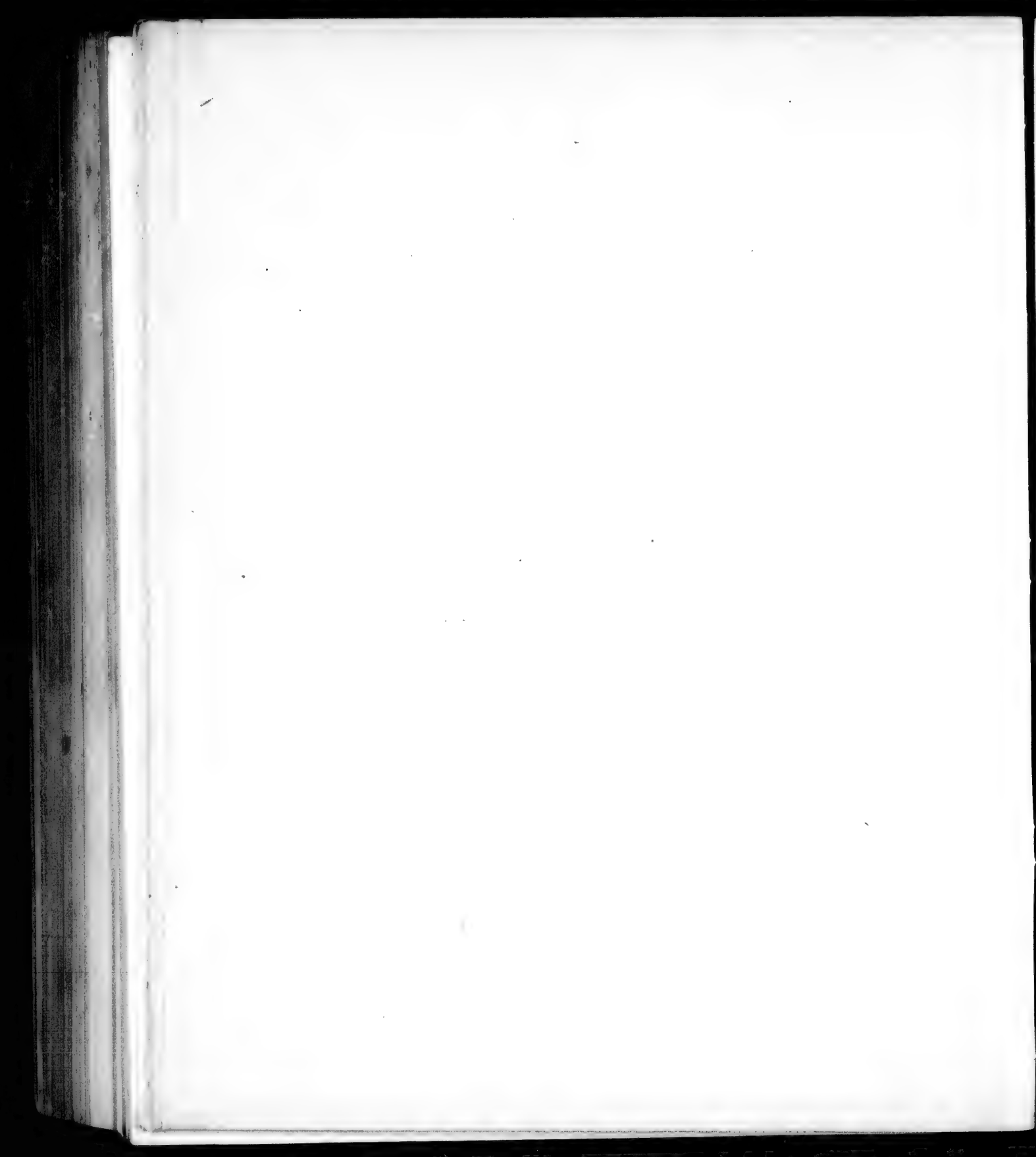
Locality of Quarry or Structure.	Class of Work.
Quarry at Grande Anse. Six feet Arch Culvert.	Quarried and delivered Dressing do. Laying Masonry.
Grand Anse Quarry. Road Bridge.	Quarried and delivered. Dressing Sandstone. Laying Masonry.

APPENDIX J.—Continued.

(No. 3)

Cost of Masonry on Contract No. 9. From notes of force and such other data as could be obtained up to 30th November, 1870.

Locality of Quarry or Structure.	Class of Work.	Total Quantity.	Total Cost.	Cost per c. yard.	Name and Previous Occupation of Foremen.	Remarks.
Quarry at Grande Anse.	Quarried and delivered south.	274	\$2,192 00	\$8 00	Morrisette, Foreman, Mason. " " "	Obtained information of cost of delivering stone from Grande Anse from Mr. Cole who was in charge of the work. Six feet Arch Culvert at Station 786; 2nd class masonry.
Six feet Arch Culvert.	Dressing do. do.	250	1,255 00	4 78		
	Laying Masonry.	260	1,014 50	3 90		
	Total Cost	.....		\$16 68		
Grand Anse Quarry.	Quarried and delivered.	200	\$1,600 00	\$8 00	Morrisette, Foreman, Mason. " " "	Road Bridge at Station 806; 1st class masonry.
Road Bridge.	Dressing Sandstone.	190	1,112 00	5 85		
	Laying Masonry.	200	766 00	3 83		
	Total Cost	.....		\$17 68		



Excavating Foundation.		Dressing Stor		S
Fore- men.	Labor- ers.	Fore- men.	Stone Cutters.	
\$2.00	\$1.20	\$3.00	\$2.50	
8	46	24	188	
1.50	1.00	3.00	2.50	
6	91		503½	
2.50	1.20	3.50	2.50	
4	46	6	120	
1.50	1.00	2.50		
2	30	12		
1.50	1.00	3.50	2.50	
11½	146	Nil.	10	
2.00	1.20	3.00	2.50	
17	185	10	270	
2.50	1.20	3.50	2.50	
7	29		15	
2.00	1.20	3.00	2.50	
8	49	8	148½	

Excavating Foundation.		Dressing Stone			Building Culv.		
Fore-men.	Labor-ers.	Fore-men.	Stone Cutters.	Smiths.	Fore-men.	Masons.	Labor-ers.
\$2.00	\$1.20	\$3.00	\$2.50	\$2.00 and 1.00	\$3.50	\$2.50	\$1.50
8	46	24	188	Nil	31	58	10
1.50	1.00	3.00	2.50	2.00 and 1.00	3.50	2.50	1.50
6	91		503½		49½	158	54
2.50	1.20	3.50	2.50	2.00 and 1.00	3.50	2.50	1.50
4	46	6	120		15	44	1
1.50	1.00	2.50			2.50	2.50	1
2	30	12			27	38	1
1.50	1.00	3.50	2.50	2.00 and 1.00	2.50	2.50	1
11½	146	Nil.	10	Nil	18½	25½	1
2.00	1.20	3.00	2.50	2.00 and 1.00	3.50	2.50	
17	185	10	270	Nil	35	149	
2.50	1.20	3.50	2.50	2.00 and 1.00	3.50	2.50	
7	29		15		17	22	
2.00	1.20	3.00	2.50	2.00 and 1.00	3.50	2.50	
8	49	8	148½	23	18	48	

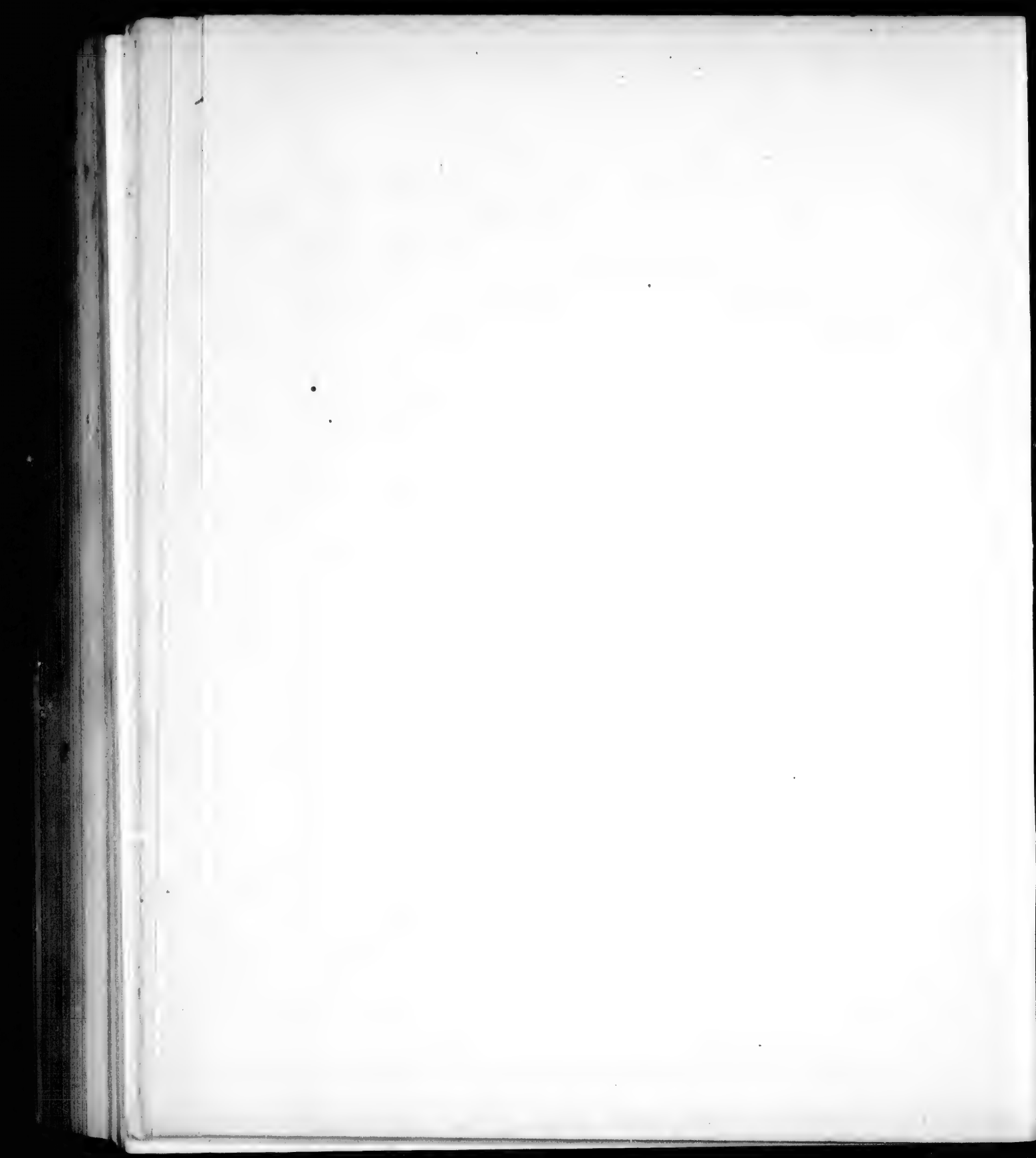
APPENDIX J.—Continued.

(No. 4.)

INTERCOLONIAL RAILWAY—CONTRACT NO. 9.

Cost of Masonry in Culvert from Engineer's records and reports.

Sta.	Building Culvert.				Quantity of Masonry C. Yards.	Cement Barrels.	Total Cost.	Cost per C. Yard.	Paving C. Yards.	Foundation C. Yards.	Total Cost.	Cost per C. Yard.	REMARKS.
	Foremen.	Masons.	Laborers.	Horses.									
00 and 00	\$3.50	\$2.50	\$1.20	\$1.70		\$4.20							
11	31	58	113	6	82.67	18	\$1016.90	\$12.30	7.50	85	\$71.20	\$0.83½	Double box culvert at station 95.
00 and 00	3.50	2.50	1.00	1.70		4.20							
	49½	158	597	310	235	56	32.70	11.47	15.	118	100.00	0.84	8 foot Arch Culvert at station 80 + 57
00 and 00	3.50	2.50	1.20	1.70		4.20							
	15	44	131	80	58.00	16.00	843.90	14.55	4.30	73	65.20	0.89½	Single Box Culvert 2'6" x 4'0" at station 52.
	2.50	2.50	1.00	1.70		4.20							
	27	38	148½	118	41	12	694.70	16.94½	3.75	47	33.00	0.70	Single Box Culvert at station 411.
2.00 and 1.00	2.50	2.50	1.00	1.70		4.20							
Nil	18½	25½	117	246	64.23	16	900.07	14.00	45	77	192.07	2.50	Single Box Culvert 2'6" x 4'0" at station 474.
2.00 and 1.00	3.50	2.50	1.20	1.70		4.20							
Nil	35	119	280	138	240	36	1921.80	8.00	17.70	140	256.00	1.83	Double Box Culvert 6 x 4 at station 143 + 41
2.00 and 1.00	3.50	2.50	1.20	1.70		4.20							
	17	22	130	32	85.69	21	429.40	5.01	8.30	86.00	52.30	0.60½	Double Box Culvert 2'6" x 4' at station 180 + 65.
2.00 and 1.00	3.50	2.50	1.20			4.20							
23	18	48	92		64.42	18	855.15	13.27½	12.00	62.20			N. B.—The greater portion of stone used in this Culvert had been previously dressed in the quarry. Double Box Culvert at station 109 + 28



erials, &c., to 30th November, 1870.

foreman.	REMARKS.
Ditch Grubbing in Do Rock cut	This cut has been worked by several foremen.
Ditch	Very wet. Through light bushes, no large stumps.
Ditch	Through meadow land.
Ditch	Through ploughed fields, no grubbing.
Ditch and C	Includes 50 feet pole drain.
Ditch Bridge Foun and clea	This cut has been worked by five different foremen. Through wooded land. 346 yards rock and earth cost \$559.87½ = \$1.61½ per yard

CONTRACT

Cost of earthwork, clearing, &c., on Contract No. 15. Excl

STATION.		Total quantity.	Total cost.	Cost per yard.	Nature of soil.
Ditch	0 to 14	1022	\$ 255 50	\$ 0 25	Gravel and clay.
	(No. 1) 0 to 14		68 85		
Grubbing in Ditch	0 to 14	1 acre.	91 50		
Do	(2) 105	3945	983 87 $\frac{1}{2}$	0 23 $\frac{1}{2}$	Loam and clay.
Line	185	346	559 87 $\frac{1}{2}$	1 61 $\frac{1}{2}$	Rock and earth.
Rock cut	(3) 198	4514	829 25	0 15 $\frac{1}{2}$	Sand and fine grav.
	(4) 210	9743	1490 87 $\frac{1}{2}$	0 18 $\frac{1}{2}$	do do
	(5) 232	13669	2150 87 $\frac{1}{2}$	0 15 $\frac{1}{2}$	do do
	(6) 253	9254	1093 50	0 11 $\frac{1}{2}$	do do
Ditch	(7) 262	1375	182 00	0 13 $\frac{1}{2}$	do do
	(8) 274	482	118 75	0 24 $\frac{1}{2}$	Wet clay and mow
	(9) 317	10564	2009 37	0 19	Sand and hard clay
	(10) 332	9954	1551 25	0 15 $\frac{1}{2}$	Sand.
Ditch	(11) 338	903	197 00	0 21 $\frac{1}{2}$	Sand and clay.
	(12) 354	790	107 00	0 13 $\frac{1}{2}$	Hard clay.
	(13) 361	2225	397 00	0 17 $\frac{1}{2}$	do
	(14) 382	2168	649 75	0 29 $\frac{1}{2}$	do
Ditch	(15) 388	671	73 00	0 10 $\frac{1}{2}$	Sand and clay.
	(16) 391	5309	991 12 $\frac{1}{2}$	0 18 $\frac{1}{2}$	Hard clay.
	(17) 410	1304	216 00	0 16 $\frac{1}{2}$	Clay.
	(18) 418	197	23 00	0 11 $\frac{1}{2}$	Sand.
	(19) 461	1239	422 37 $\frac{1}{2}$	0 34	Hard clay.
	(20) 471	2632	761 25	0 28 $\frac{1}{2}$	do
Ditch and Culvert Foundations	(21) 474	852	122 50	0 14 $\frac{1}{2}$	Clay and boulders.
	(22) 488	2818	596 75	0 21	Hard clay.
Ditch	(23) 589	7795	1201 12 $\frac{1}{2}$	0 15 $\frac{1}{2}$	Loam and clay.
	(24) 589	143	35 00	0 24 $\frac{1}{2}$	Clay and boulders.
Bridge Foundation	(28) 601	485	284 00	0 58 $\frac{1}{2}$	Gravel and rock.
and clearing on line		96 acres.	1694 50	\$17.65 per acre.	

Say to end of November 95,000 yards earth, cost \$16761.00 or 17.6 cents per

APPENDIX K.

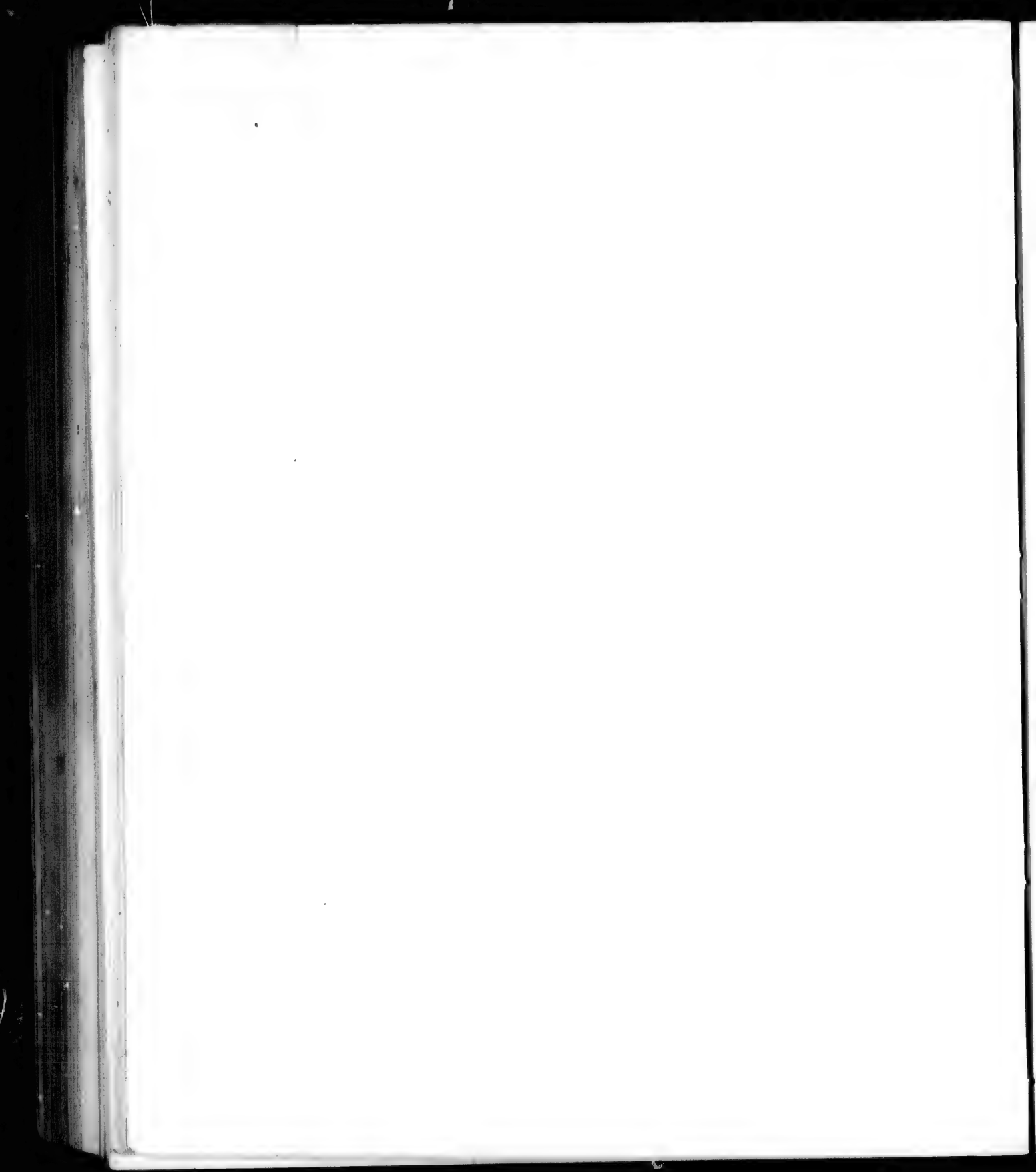
TRACT No. 15.

No. 15. Exclusive of plant, teaming, materials, &c., to 30th November, 1870.

Nature of soil.	Name and previous occupation of foreman.	REMARKS.
Gravel and clay.	Cormier, farmer. do do	
Loam and clay.	Moodie.	
Rock and earth.	Cullin, ship carpenter.	
Sand and fine gravel.	Townsend on Railway.	
do do	Mullins, ship carpenter.	
do do	Caldin, farmer.	This cut has been worked by several foremen.
do do	Barry, ship carpenter.	
do do	Caldin, farmer.	
Wet clay and mould.	Haché, do	Very wet. Through light bushes, no large stumps.
Sand and hard clay.	St. Munst, do	
Sand.	Burke, lumberer.	
Sand and clay.	Doucette, shoemaker.	
Hard clay.	Good, lumberer.	Through meadow land.
do	Caldin, shoemaker.	
do	F. Doucette, do	
Sand and clay.	Cole, farmer	Through ploughed fields, no grubbing.
Hard clay.	Good, lumberer.	
Clay.	McDougall on Railway.	
Sand.	do do	
Hard clay.	Flannery, ship carpenter.	Includes 50 feet pole drain.
do	do do	
Clay and boulders.	Branch do	
Hard clay.	do do	
Loam and clay.	McDougall on Railway.	This cut has been worked by five different foremen.
Clay and boulders.	Doucette, shoemaker,	Through wooded land.
Gravel and rock.	Clancy, stonecutter.	

11.00 or 17.6 cents per yard.

346 yards rock and earth cost \$559.87½ = \$1.61½ per yard



vember, 1870.

Location of foreman.	REMARKS.										
Quarry at Nipu.											
Do											
Nipissiguit Br	This includes pumping but not cement nor sand (13 barrels cement used.)										
do	Exclusive of pumping, cement and sand.										
Little River C	Boulders had to be lifted with derrick from deep holes.										
Do											
Culvert at 474	Includes pumping. Cement and sand not <i>included</i> (29 brls. cement used.)										
Basin quarry. ¹	* Boulders were above ground on sea shore. Does not include blacksmiths.										
Cost of one yard of masonry in Nipissiguit Bridge. <table> <tr> <td>Quarrying</td><td>\$ 7 43</td></tr> <tr> <td>Dressing.....</td><td>13 02</td></tr> <tr> <td>Laying</td><td>3 86</td></tr> <tr> <td></td><td> </td></tr> <tr> <td></td><td>\$24 31 cost of 1 yard 1st class.</td></tr> </table>		Quarrying	\$ 7 43	Dressing.....	13 02	Laying	3 86				\$24 31 cost of 1 yard 1st class.
Quarrying	\$ 7 43										
Dressing.....	13 02										
Laying	3 86										
	\$24 31 cost of 1 yard 1st class.										
Cost of one yard in Box Culvert at 474. <table> <tr> <td>Quarrying.....</td><td>\$ 5 22</td></tr> <tr> <td>Dressing.....</td><td>8 41</td></tr> <tr> <td>Laying</td><td>3 22</td></tr> <tr> <td></td><td> </td></tr> <tr> <td></td><td>\$16 25 cost per yard 2nd class.</td></tr> </table>		Quarrying.....	\$ 5 22	Dressing.....	8 41	Laying	3 22				\$16 25 cost per yard 2nd class.
Quarrying.....	\$ 5 22										
Dressing.....	8 41										
Laying	3 22										
	\$16 25 cost per yard 2nd class.										
* No derrick was required at Basin quarry.											

CONTR

Cost of quarrying, dressing and

Locality of quarry or structure.	Class of work.	Total quantity.	Total cost.
			\$ cts.
Quarry at Nipissiguit Bridge.	Quarrying granite.	392	2912 05
Do do	Dressing.	201½	2617 60
Nipissiguit Bridge abutment.	Laying masonry.	7½	185 70
do do	do	7½	209 70
Little River Quarry.	Splitting boulders.	207	1082 07
Do	Dressing do	107	900 20
Culvert at 474.	Laying masonry.	140	450 50
Basin quarry.	Splitting boulders.	127	351 92

CONTRACT No. 15.

ing, dressing and laying masonry to 30th November, 1870.

ty.	Total cost.	Cost per yard.	Name and previous occupation of foreman.	REMARKS.
	\$ cts.	\$ cts.		
	2912 05	7 43	Paquette, quarryman.	
	2617 60	13 02	Clancy, stonecutter.	
	285 70	3 86	do	This includes pumping but not cement nor sand (13 barrels cement used.)
	209 70	2 83	do	Exclusive of pumping, cement and sand.
	1082 07	5 22	Delisle, stonecutter	Boulders had to be lifted with derrick from deep holes.
	900 20	8 41	do	
	450 50	3 22	do	Includes pumping. Cement and sand not included (29 brls. cement used.)
	351 92	2 77	Gilmour, quarryman.	* Boulders were above ground on sea shore. Does not include blacksmiths.
				Cost of one yard of masonry in Nipissiguit Bridge.
				Quarrying\$ 7 43
				Dressing..... 13 02
				Laying 3 86
				<u>\$24 31</u> cost of 1 yard 1st class.
				Cost of one yard in Box Culvert at 474.
				Quarrying.....\$ 5 22
				Dressing..... 8 41
				Laying..... 3 22
				<u>\$16 25</u> cost per yard 2nd class.
				* No derrick was required at Basin quarry.



APPENDIX L.

1

CONTRACT No. 9.

Work remaining to be done, 1st December, 1871.

CONTRACTORS' STATEMENT.

		\$ cts.	\$ cts.
187500	Linl. ft. Fencing per 100 ft.....	5 40	10,125 00
18200	C. yds. Rock	0 90	16,380 00
125350	" Earth.....	0 27	33,844 80
5400	Linl. ft. Under-drains.....	4 50	243 00
800	C. yds. Rip-Rap	5 40	4,320 00
150	" Concrete	4 50	675 00
1350	" 1st Class Masonry	9 00	12,150 00
1805	" 2nd "	7 20	12,996 00
246	" Paving	6 30	1,549 80
	Bridge Superstructure.....		3,888 00
1000	Lineal ft. For Culverts.....	0 18	180 00
13	Public Roads and Cattle Guards.....	75 00	975 00
21	Farm Crossings.....	18 00	378 00
	Tunnel at Armstrong's Brook, $\frac{2}{3}$ to be done.....	5,000 00	4,000 00
			101,704 60
	LESS		
	Cut stone delivered, 300 cubic yards @ \$8.....	2,400	
	Rough " 240 " @ \$4.....	960	
	Timber for Cattle Guards)		
	Farm Gates (all made))	400	
	Glycerine, powder, steel, cement, lime, &c.....	3,400	
			7,160 00
			94,544 60



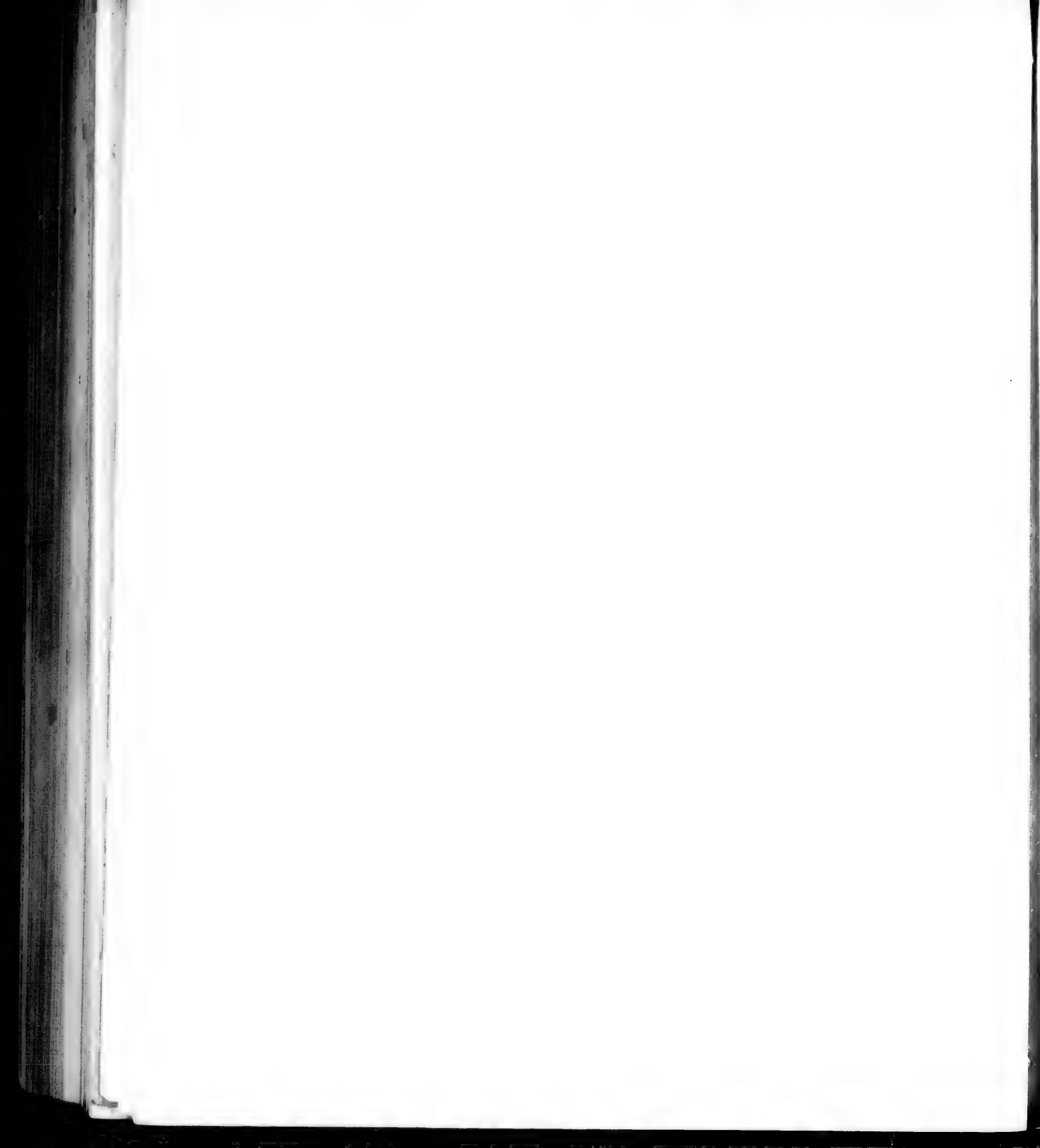
SECTION 9.—1ST DECEMBER, 1871.

STATION.		Earth. Total Quantities in Schedule.	Earth to be done 1st Dec. 1871.	Rock. Total Quantity in Schedule.	Rock to be done. 1st Dec. 1871.
From	To				
0	2+84 }	45488	27000		
9+85	12+70 }				
45+80	88+41 }	19175	8000		
91+43	112+80 }	17221	3800	7853	4200
115+28	118 }				
140+8	149+54 }	19662	2300	2139	Nil.
171+50	191+77 }	Nil.	Nil.	14627	4500
221+55	223+40 }	Nil.	Nil.	508	Nil.
225+20	225+66 }				
226+80	227+15 }	11728	3300	1413	900
233+40	243+30 }	3800	700		
260+70	277+70 }	8752	3950		
280+60	313+30 }	53439	13500		
319	440+70 }	15869	6100		500
453+10	478+14 }	6872	500		
490+65	519+80 }	27895	3500	3161	Nil.
533+25	560+50 }		6000	18909	150
569+35	573+78 }				
579+70	595+57 }				
596+90	602+70 }		7000	22594	3300
604+16	613+20 }				
625+25	641+96 }				
642+75	651+35 }		100	3761	Nil.
652+60	654+20 }				
654+54	657+35 }				
659+20	669+9 }		1000	7599	Nil.
677+90	678+97 }				
680+65	683+40 }		1800	16079	150
684+66	703+47 }				
705+56	711+95 }				
724+25	743+75 }		300	12770	£500
744+60	746 }				
759+15	760+68 }				
761+50	761+88 }			26218	Nil.
775+80	790 }				
790	810+50 }	14046	2000		
819	834+70 }	8788	Nil.		
847+58	850+60 }	288	Nil.		
852+30	946+28 }	36683	Nil.		
953+58	963+70 }				
967+46	995+20 }	19373	2000		
998	1001+88 }				
1002+50	1004+50 }	3805	1500		
1025	1109 }	36981	Nil.		
Carried forward.....		349865	94350	137631	17200

SECTION 9.—1ST DECEMBER, 1871.

STATION.		Earth. Total Quantities in Schedule.	Earth to be done, 1st December, 1871.	Rock. Total Quantities in Schedule.	Rock. to be done, 1st December, 1871.
From	To				
<i>Brought forward</i>		349865	94350	187631	17200
Add for					
Catch Water Drains, Stream Diver-					
sions		30000	10000		
Approach to Public & Private Roads.		35000	18000		
Excavation in Foundations.....		7000	3000	4000	1000
		421865	125350	141631	18200
Deduct Rock entered separately in				60000	
Schedule as Rock Borrowing.....		421865	125350	81631	18200

STATION.	Masonry. Total Quantities in Schedule.	Masonry to be done, 1st Dec., 1871.	Paving. Total Quantities in Schedule.	Paving to be done, 1st Dec., 1871.
11+50 Arch.....	2790	Nil.	120	Nil.
53 Box	49	Nil.	9	Nil.
80+50 Arch	365	Nil.	19	Nil.
96 Double Box.....	104	Nil.	18	Nil.
109 Double Box.....	76	Nil.	16	Nil.
143+50 Arch	403	Nil.	20	Nil.
183 Double Box.....	98	Nil.	17	Nil.
201 Beam	40	Nil.	12	Nil.
211+30 Beam	35	Nil.	12	Nil.
222+30 Box	182	Nil.	18	Nil.
226 Bridge	1200	400		
236+25 Box	82	Nil.	11	Nil.
272+50 Beam	40	40	12	12
291+50 Double Box.....	62	62	11	11
300 Box	38	38	8	8
317 Beam	35	Nil.	12	Nil.
342 Box ..	34	34	7	9
352+50 Beam	40	40	12	12
364+80 Beam	60	60	12	12
381 Box	45	45	9	9
396+50 Beam	190	190	13	13
411 Box	56	Nil.	9	Nil.
436 Beam	40	40	12	12

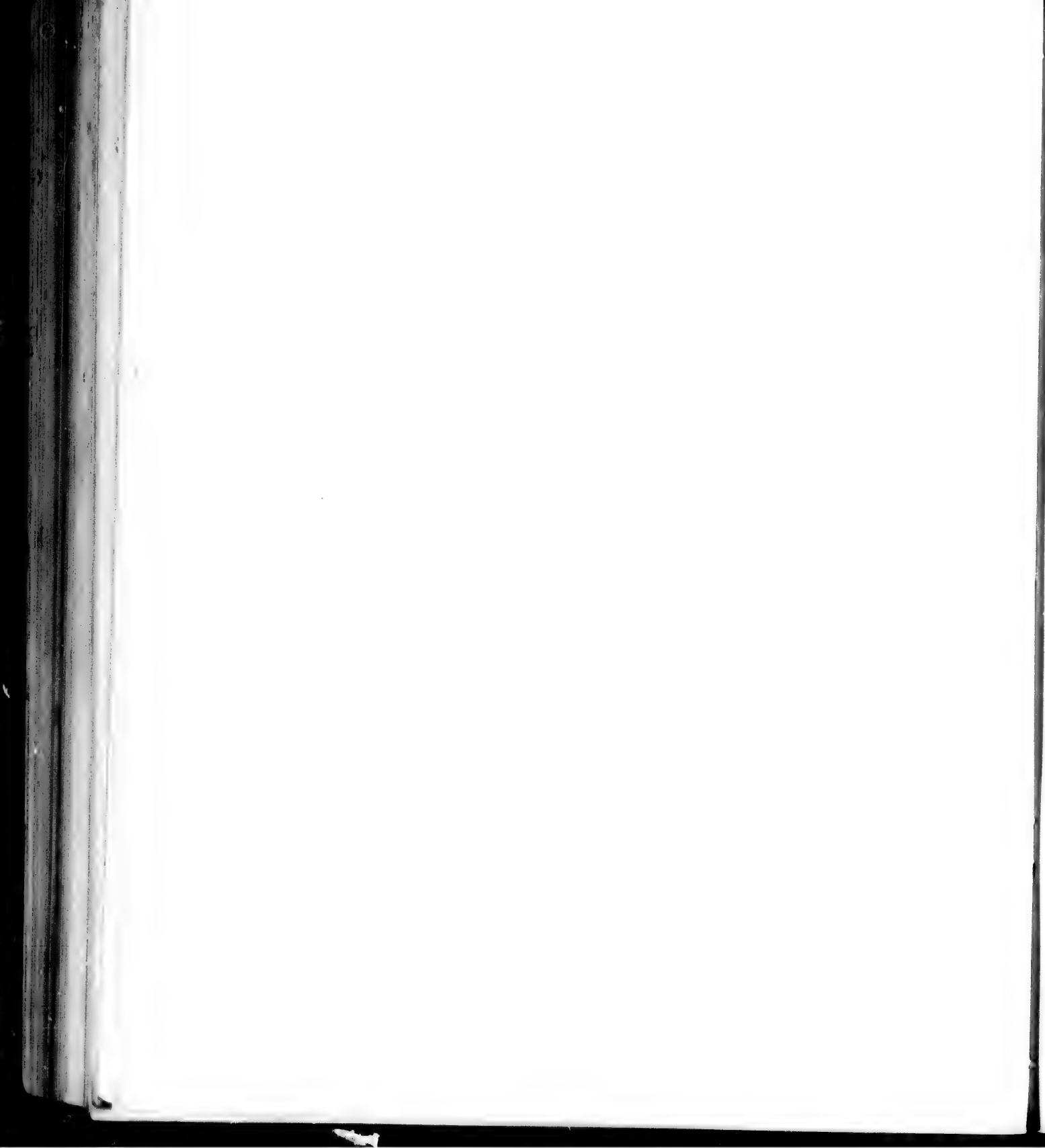


APPENDIX L.—Continued.

4

SECTION 9.—1ST DECEMBER, 1871.—Continued.

STATION.	Masonry. Total Quantities in Schedule.	Masonry to be done, 1st Dec., 1871.	Paving. Total Quantity in Schedule.	Paving to be done, 1st Dec., 1871.
464	Beam.....	54	20	20
473+50	Box.....	60	Nil.	Nil.
503+20	Box.....	46	8	8
547+50	Arch.....	188	12	12
572	Beam.....	190	13	13
587+25	Box.....	31	7	7
590+50	Arch.....	491	31	31
610	Box.....	50	9	9
635+50	Box.....	81	11	11
655+30	Beam.....	60	12	12
661+81	Box.....	60	10	Nil.
678+50	Beam.....	35	10	10
698+50	Beam.....	135	24	Nil.
707+50	Beam.....	190	13	Nil.
726	Box.....	44	8	Nil.
736	Box.....	33	7	Nil.
761	Bridge.....	1100	250	
780	Beam.....	300	15	Nil.
787	Arch.....	232	14	Nil.
804+50	Arch.....	531	33	Nil.
807	Beam.....	220	15	Nil.
825+30	Box.....	40	8	Nil.
835	Box.....	48	8	Nil.
863+80	Beam.....	190	14	Nil.
874+50	Box.....	40	8	Nil.
890	Beam.....	190	14	Nil.
900+20	Box.....	41	8	Nil.
910+50	Double Box.....	70	12	Nil.
920+50	Box.....	40	8	Nil.
934	Box.....	44	8	Nil.
962+40	Beam.....	60	21	Nil.
980	Box.....	20	8	Nil.
994+30	Beam.....	300	17	17
1001	Bridge.....	1200	400	
1038	Box.....	37	8	Nil.
1053	Double Box.....	83	13	Nil.
1074+30	Beam.....	90	18	Nil.
1083+60	Beam.....	54	16	Nil.
1090+60	Box.....	37	8	Nil.
1102+20	Beam.....	135	9	Nil.
		12984	876	246
	1st class.....	1350		
	2nd class.....	1805		

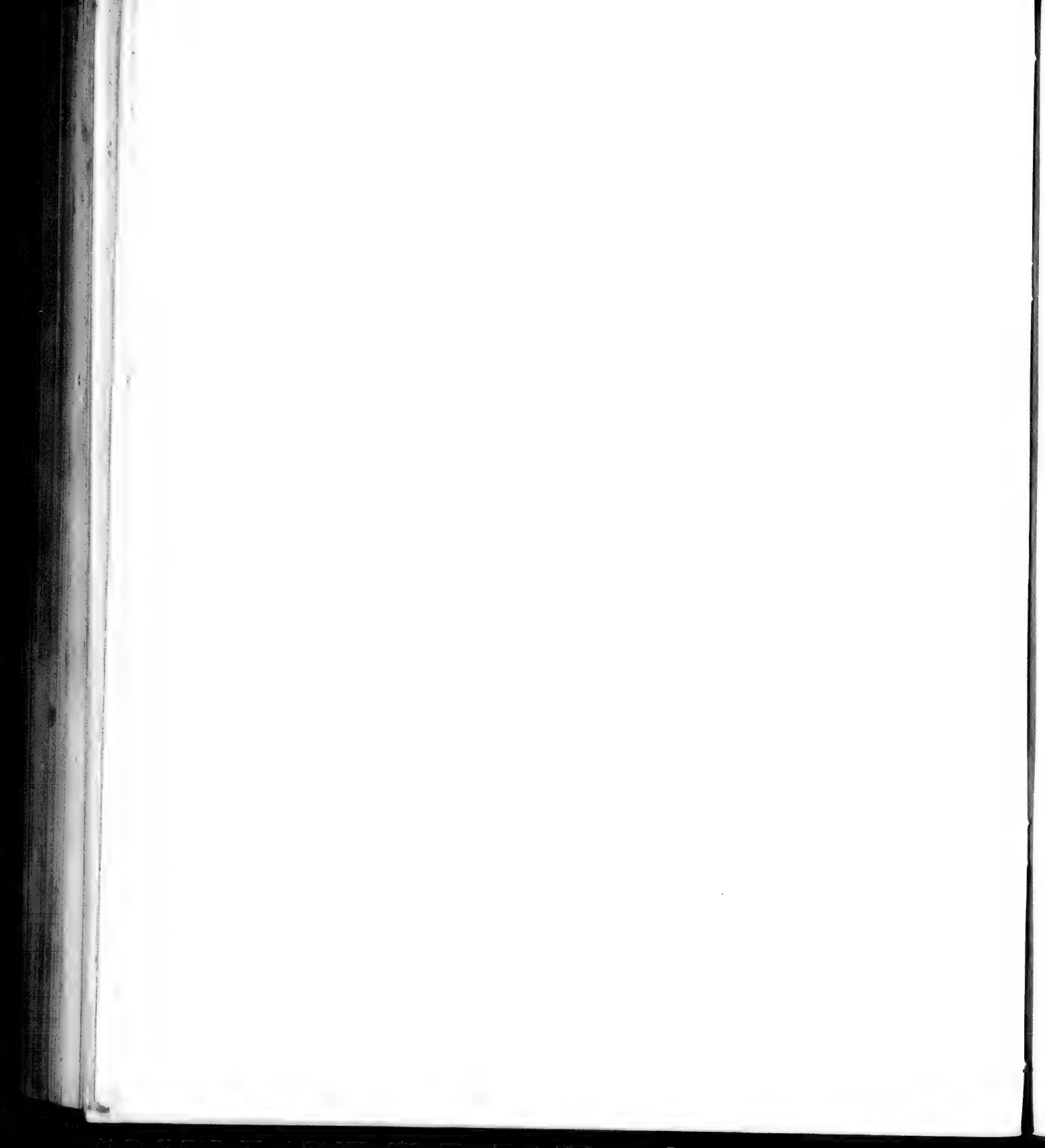


APPENDIX M. **CONTRACT No. 15.**

Work remaining to be done 1st Dec, 1871.

CONTRACTORS' STATEMENT.

		\$ cts.	\$ cts.
120700	Lineal feet Fencing, per 100 feet.....	5 40	6,517 80
1430	Cubic yards Rock, per Cubic yard.....	1 00	1,430 00
337917	“ Earth “ “.....	20	67,583 40
12000	Lineal feet Under-drains, per 100 feet.....	12 00	1,440 00
750	Cubic yards Rip-Rap.....	2 00	1,500 00
300	“ Concrete.....	5 00	1,500 00
5125	“ 1st Class Masonry.....	10 00	51,250 00
2303	“ 2nd “.....	7 50	17,272 50
359	“ Paving.....	5 00	1,795 00
7	Public Roads and Cattle Guards.....	75 00	525 00
	Bridge Superstructures.....		42,500 00
2	Overhead Bridges 33, 66 feet.....	10 00	600 00
38	Single Farm Crossings, 2 Gates.....	10 00	380 00
31	Double “ 4 “.....	15 00	465 00
			194,818 70
	LESS		
	Cut Stone delivered, 1660 Cubic yards @ \$8.....	\$13280	
	Rough Stone “ 1270 “ @ 4.....	5080	
	Timber for Cattle Guards, Overhead Bridges...	500	
	Farm Gates, Powder, Steel, Cement, Lime, &c. 1800		20,660 00
			174,158 70

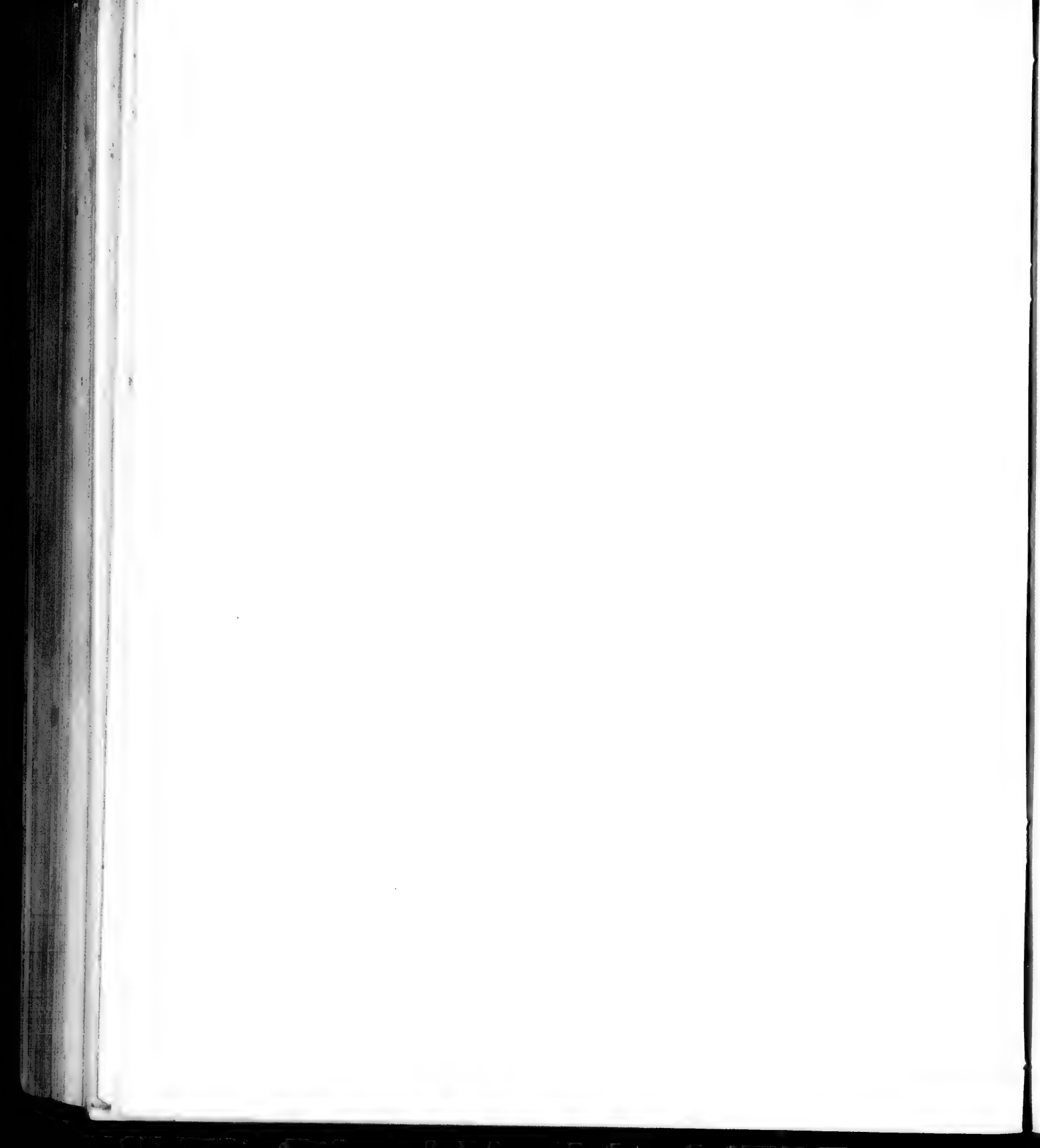


APPENDIX M.—Continued.

2

SECTION 15.—1st DECEMBER, 1871.

STATION.		Earth. Total Quantities in Schedule.	Earth. to be done 1st Dec., 1871.	Rock. Total Quantities in Schedule.	Rock to be done 1st Dec., 1871.
From	To				
0	16+51 }	15158	26000		
30+63	44+04 }				
46+71	77	27876	17000		
79+58	145+44	32363	13000	952	500
146+09	148+46 }				
148+98	163+77 }	4961	1800	801	750
164+40	166+24 }				
184+85	198+02 }				
208+50	232+50 }	127466	77000	5396	N
241+35	242+55 }				
243+78	244+15 }				
248+95	253+69 }				
263+09	278	54675	10200		
295+30	297+60 }				
301+94	306+92 }				
310+80	313+07 }	51339	15000		
317+96	332+61 }				
339	343+10 }				
347+37	350+36 }				
351+55	352+57 }	15979	1500		
352+97	361+39 }				
371+65	377+16 }				
381+26	391+95 }				
398+39	403+13 }	20836	3500		
409+85	417+20 }				
423+35	424+64 }				
434+09	437+43 }	34969	26000		
437+43	455				
456	461+50 }	42508	10500		
469+92	487+68 }				
495+20	501+03 }	9036	7200		
506+52	509+99 }				
522+24	528+64 }				
534+88	535+09 }	15553	15000		
537+57	542+45 }				
543+27	558+34 }				
566+62	572+03 }	90100	68000		
588+92	600+54 }				
607	609+78 }				
617+23	624+44 }	8617	8617		
625+11	633+05 }				
635+04	639				
		551436	300317	7149	1250
Add for catch-water drains, &c.....		16969	12500		
Crossings		28359	21500		
Excavations, &c.....		9908	3600	366	180
		606672	337917	7515	1430



APPENDIX M.—Continued.

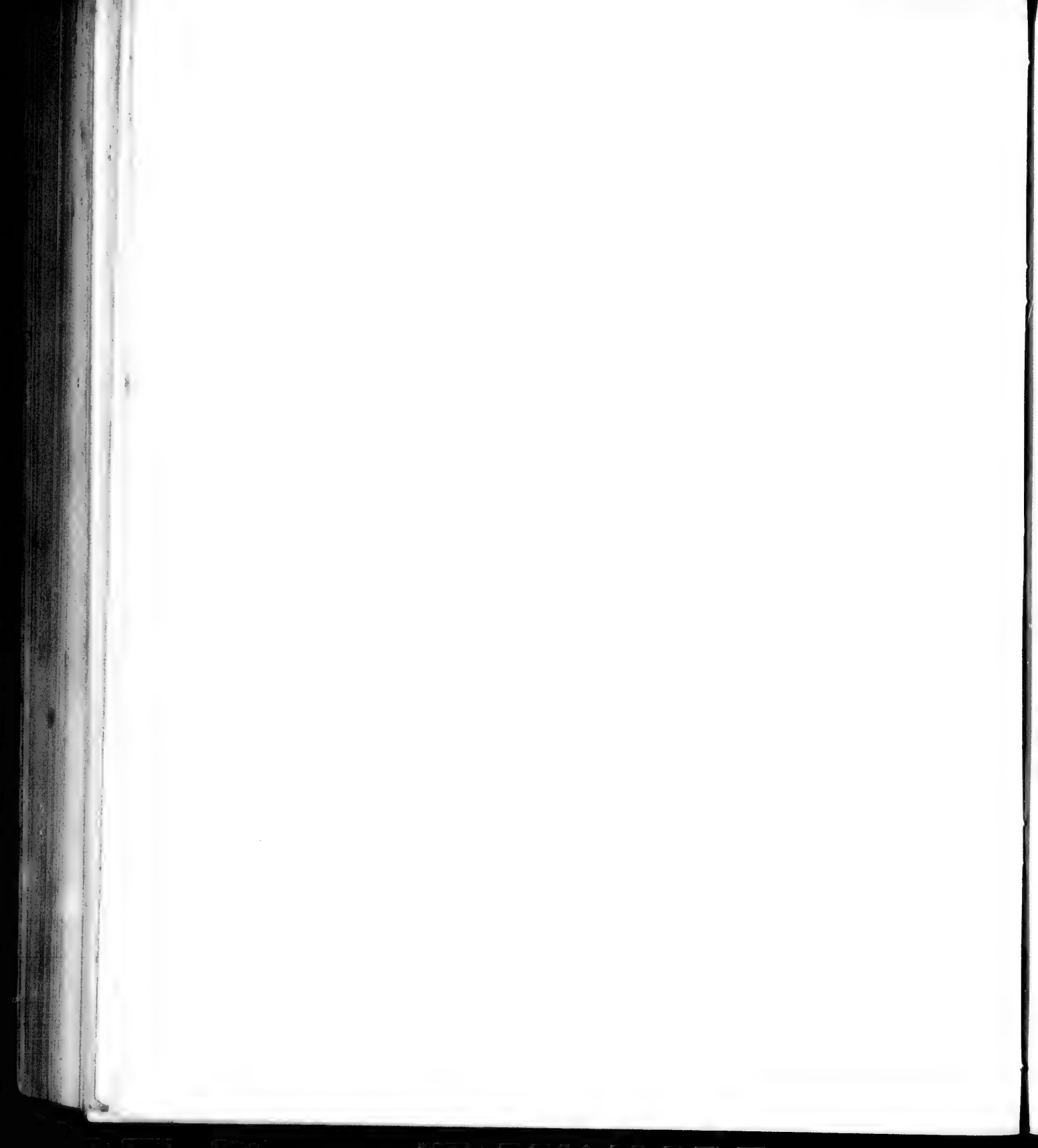
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SECTION 15.—1st DECEMBER, 1871.

Station.	Masonry. Total quantities in Schedule.	Masonry to be done 1st Dec. 1871.	Paving. Total Quantities in Schedule.	Paving to be done 1st Dec. 1871.
14+50	D. Box	76	76	16
32+50	Bridge	1082	700	16
71	Bridge	1882	700	
88	Box	35	35	7
106+80	Arch	485	485	31
131	Box	58	58	10
143+50	Box	49	49	9
152	Box	41	41	9
161+30	Box	35	35	7
192+50	Arch	1680	1350	158
214+50	Bridge	3350	1700	158
236+50	Beam	33	33	7
242	Box	37	Nil	Nil
251+30	Box	158	Nil	Nil
264+50	Box	106	Nil	Nil
270+50	Box	102	Nil	Nil
296+20	Box	31	Nil	Nil
812	Box	35	35	8
325+20	Arch	887	700	Nil
325+20	Beam	233	34	34
337+50	Bridge over	48	48	
341	Box	76	Nil	Nil
349+50	Arch	226	Nil	Nil
356+60	D. Box	140	Nil	Nil
373+20	Box	67	Nil	Nil
384+50	Arch	499	2	Nil
401	Box	37	3	9
412	Box	49	Nil	Nil
424	Box	31	Nil	Nil
435+50	Arch	219	Nil	Nil
442	Box	88	Nil	Nil
450	Box	84	Nil	Nil
455+50	Bridge	862	250	
465+50	Bridge over	48	48	
470+80	Box	63	Nil	Nil
475	Box	93	Nil	Nil
481+50	Arch	197	Nil	Nil
500	Bridge	477	75	
517+25	Beam	141	141	20
526	Box	29	29	7
540+80	Box	58	58	10
551+80	Beam	149	Nil	Nil
570	Box	29	29	7
583+25	Bridge over	80	80	
604	Bridge	2483	350	
618	Box	41	41	9
626+50	Box	45	45	10
		15954	7428	368

1st Class 5125

2nd Class 2303

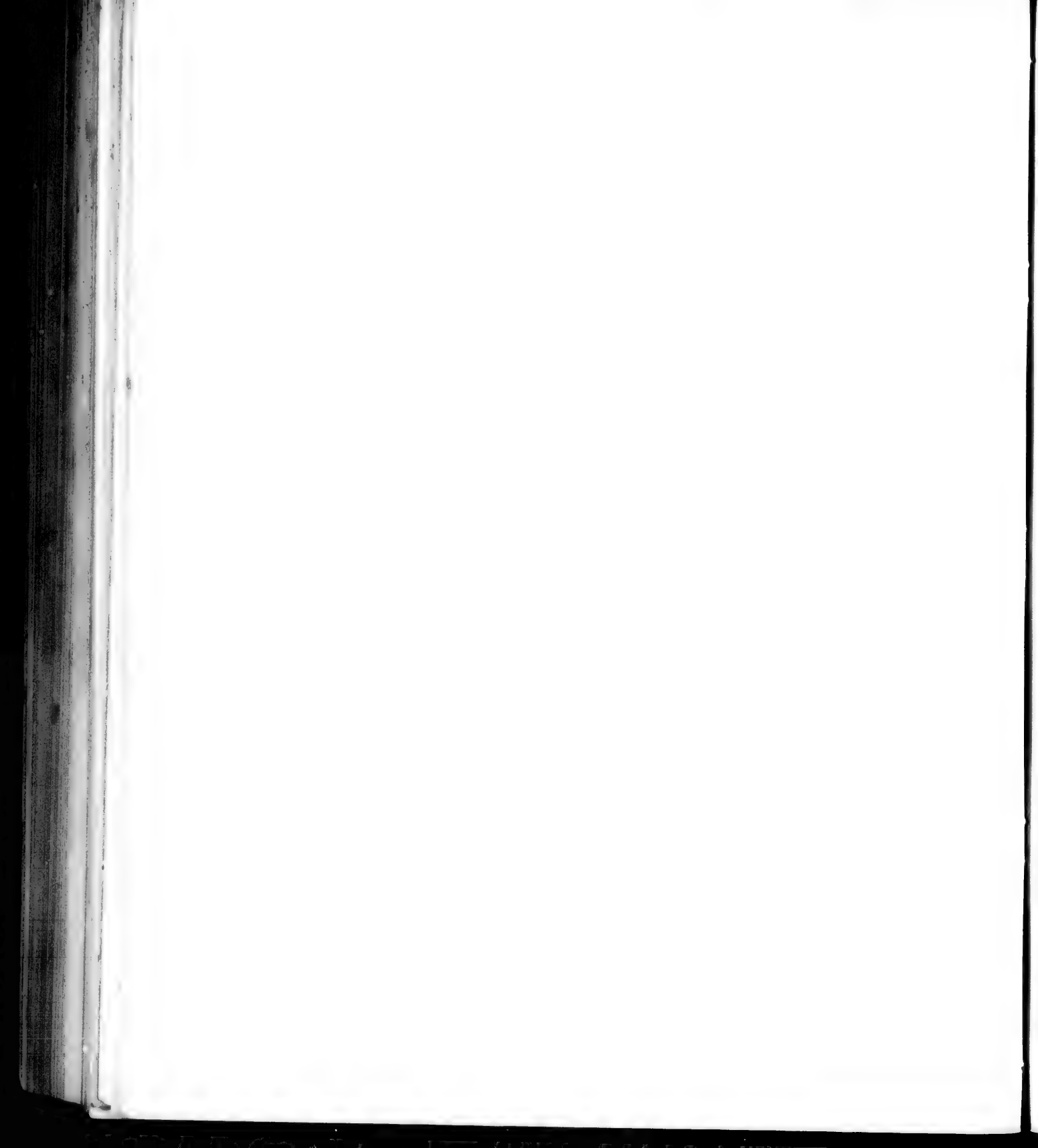


APPENDIX N.
CONTRACT NO. 9.

Schedule of Rock and Earth Excavations, shewing the Total Quantities of this Section, the Quantity done and the Quantity Remaining to be Done.

Engineers' Statement.

STATIONS.		TOTAL QUANTITY.		QUANTITY DONE.		QUANTITY TO BE DONE.		
From	To	Rock.	Earth.	Rock.	Earth.	Rock.	Earth.	
0	12+70	Nil	45,488	Nil	9,731	Nil	35,757	Contractor shows only 27,000 cubic yards, which a glance at the profile will show to be absurd.
45+80	88+41	135	15,821	135	5,538	Nil	10,283	This quantity of gravel includes 1,824 c. yds. of stripping from the line quarry at Station 127.
91+43	118+00	6,000	10,343	596	4,975	5,404	5,368	
*140+80	*191+77	6,154	15,047	1,511	8,447	4,643	6,600	*Contractor shows only 2,300 c. yds. to be done between those points, whereas in the embankment between 177+50 and 186+50, alone, 8,266 c. yds. remain to be done.
221+55	223+40	6,229	2,158	6,229	2,158	Nil	Nil	This embankment has been calculated with slopes of 1½ to 1; but, being composed chiefly of rock, it took a much steeper slope.
233+40	243+30	450	12,148	Nil	4,677	450	7,471	Here the contractor shows 17,450 c. yds. remaining; but the bank is not more than half made between these points.
260+70	277+70	Nil	2,600	Nil	2,112	Nil	488	
280+60	440+70	Nil	62,638	Nil	30,020	Nil	32,618	
453+10	478+14	1,400	13,935	104	6,020	1,296	7,915	
490+65	519+80	Nil	5,300	Nil	5,114	Nil	186	Total. Contractor shows between same points.
533+25	560+50	5,478	18,385	3,967	12,046	1,511	6,339	
						13,304	113,625	
						10,100	72,650	
						3,204	40,375	Contractor in error.



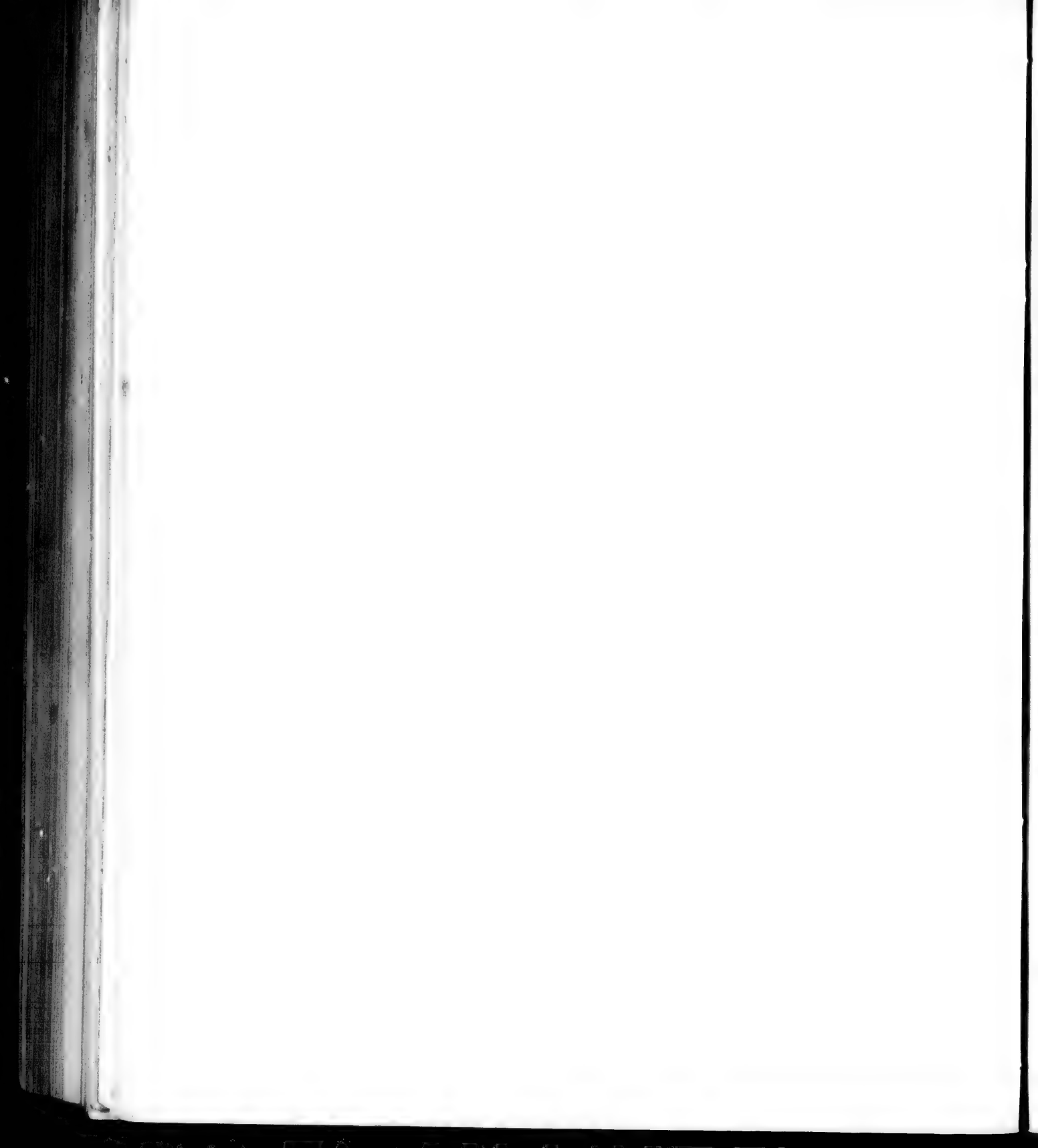
APPENDIX O. CONTRACT NO. 15.

Schedule of Rock and Earth Excavations, shewing the Total Quantities in this Division, the Quantity done and the Quantity remaining to be done up to 30th November, 1871.

Engineer's Statement.

STATION.		TOTAL QUANTITY.		QUANTITY DONE.		QUANTITIES TO BE DONE.		Bertrand's		
From	To	Rock.	Earth.	Rock.	Earth.	Rock.	Earth.	Quantity to be done.	Plus.	Minus.
0	44 10	.....	28,570	.....	2,715	.....	25,855	26,000	.....	145
46 71	77	.....	19,443	.....	3,533	.....	15,910	17,000	.....	1,190
79 90	145 40	.....	29,437	.....	9,899	.....	19,538	13,000	6,538	
146 09	166 24	389	5,530	86	3,519	303	2,011	1,800	211	
184 83	244 15	5,853	139,059	3,864	62,592	1,989	76,467	77,000	.....	533
248 95	297	.....	47,246	.....	39,501	.....	7,745	10,200	.....	2,455
301 94	343 10	.....	51,190	.....	25,939	.....	25,250	15,000	10,250	
347 30	377 22	.....	17,653	.....	12,411	.....	5,162	1,500	3,622	
381 26	417 12	.....	26,717	.....	14,017	.....	12,700	3,500	9,200	
423 25	455	.....	35,964	.....	5,271	.....	30,693	26,000	4,693	
457 17	487 68	.....	39,631	.....	19,781	.....	19,855	10,500	9,350	
495 51	500 99	.....	7,379	.....	Nil	.....	7,379	7,200	179	
522 24	558 34	.....	16,482	.....	Nil	.....	16,482	15,000	1,482	
562	600 60	.....	91,367	.....	15,519	.....	75,848	68,000	7,848	
607	639	.....	8,733	.....	Nil	.....	8,733	8,617	116	
		6,242	564,401	3,950	214,779	2,292	349,624	300,317	53,488	4,323

STATION.		TOTAL QUANTITY.		QUANTITY DONE.		QUANTITY TO BE DONE.		Contractors' Total Quantity.	Contractors' Quantities to be done	Total Quantity.	Quantity to be done.	
From	To	Rock.	Earth.	Rock.	Earth.	Rock.	Earth.			Rock.	Rock.	
0	639	6,242	564,401	3,950	214,777	2,292	349,624	e. yds. 551,436	e. yds. 300,317	7,149	1,250	Catch-Water drains and stream diversions, inlets and outlets to culverts. Approaches to public and private road crossings. Excavation of foundations to bridges and culverts. Excavations in cattle guards.
			15,763	.....	.....	.....	15,763	16,969	12,500	.....	.....	
			24,000	.....	344	.....	23,656	28,359	21,500	.....	.....	
	230	8,480	114	4,452	116	4,028	9,908	3,600	366	180		
		432	.....	144	.....	288	.....	.....	.....	.....		
		6,472	613,076	1,064	219,717	2,408	393,359	606,672	337,917	7,515	1,430	



REST

CONTRACT No. 9.

2.

D AND FARM CROSSINGS.				Rip-rap.	SUPERSTRUCTURES.
Footns.	Gates. Pairs.	Bridges and Boxes.		Cubic Yards.	
0	2	3	4 Boxes.		
45-	1	4	2 do		
91-	1	1	1 Bridge.		
140-	1				
191-	1		2 Boxes.		1, 8 feet, 1, 6 feet.
227-	1		2 do		
260-	1				16 feet.
280-	4		2 Bridges.		1, 6 feet, 1, 8 feet, 1, 12 ft, 1, 15 ft.
440-	2		1 do		1, 10 feet.
490-					
519-					
569-					1, 20 feet.
596-					
642-					
657-					1, 10 feet.
684-					1, 10 feet, 1, 8 feet.
724-	1		2 Boxes.	70	
761-	1	13	4 do		2, 20 feet.
81	1	8	2 do		
847-	2	31	6 do		2, 10 feet.
953-	2	6	2 do		1, 8 feet, 1, 12 feet.
99		4	4 do		
101	3	19	2 do		3-8 feet.
Catchwater Road and	24	89	4 Bridges	70	21
			32 Boxes		

ity.
al feet.

W. G. THOMPSON.

RESTIGOUCHE DISTRICT.

APPENDIX INTERCOLONIAL

STATEMENT of quantities to
(By Contractors)

STATIONS.		Rock.	Earth.	Masonry.		Paving.	Fencing.
From	To			1st Class. Cubic Yards.	2nd Class. Cubic Yards.	Cubic Yards.	Lineal feet.
0	45+80	750	85607				5188
45+80	91+43		5425				6690
91+43	140+08	3285	8651				9594
140+08	191+77	2161	4740				10602
191+77	227+15	1633	1704	102	15	7	7340
227+15	260+70	228	4155		53	5	6974
260+70	280+20	6	42		10		4164
280+20	440+75		16387		185	32	30716
440+75	490+65	37	5072		59	12	10508
490+65	519+80		1057		1		5830
519+80	569+35	996	4887		156	19	9910
569+35	596+90	145	5183		832	22	5510
596+90	642+75	500	9000				9170
642+75	657+30		117				2910
657+30	684+66		680		5		5472
684+66	724+25	20	3141		41		7918
724+25	761+88	1127	700				7790
761+88	819		2075	152			3350
819	847+68						264
847+68	953+02		75		2		12300
953+02	998		1172		5		432
998	1019		2220	233			4000
1019	110'		1550				16892
		10888	118590	487	1864	97	18752
Catchwater drains.....			3623				
Road and Farm Crossing.....			5598				

MATERIAL DELIVERED

Fence Rails - - - - -
Gates - - - - -
Cattle guard timber - - - - -
Cut Stone,

APPENDIX P. **COLONIAL RAILWAY.**

CONTRACT No. 9.

of quantities to be done, 1st July, 1872.

(By Contractors' Measurement.)

Paving.	Fencing.	Clearing.	ROAD AND FARM CROSSINGS.				Rip-rap.	SUPERSTRUCTURES.
Cubic Yards.	Lineal feet.	Acres.	Cattle Guard. Pairs.	Signs.	Gates. Pairs.	Bridges and Boxes.	Cubic Yard..	
	5188		2	2	3	4 Boxes.		
	6690	1.10	1	1	4	2 do		
	9594	1.95	1	1	1	1 Bridge.		
	10602	2.37	1	1				
7	7340	1.62	1	1		2 Boxes.		1, 8 feet, 1, 6 feet.
5	6974	1.54	1	1		2 do		
	4164	0.89		1				16 feet.
32	30716	3.98	3	4		2 Bridges.		1, 6 feet, 1, 8 feet, 1, 12 ft, 1, 15 ft.
12	10508	1.14	2	2		1 do		1, 10 feet.
	5830	1.36						
19	9910	2.27						
22	5510	1.03						1, 20 feet.
	9170	2.10						
	2910	0.66						
	5472	1.25						1, 10 feet.
	7918	1.81						1, 10 feet, 1, 8 feet.
	7790	1.72	1	1		2 Boxes.	70	
	3359		1	1	13	4 do		2, 20 feet.
	264			1	8	2 do		
	12396	0.91		2	31	6 do		2, 10 feet.
	4324	0.87		2	6	2 do		1, 8 feet, 1, 12 feet.
	4000	0.45			4	4 do		
	16892	1.84	1	3	19	2 do		3-8 feet.
97	187521	30.86	15	24	89	4 Bridges	32 Boxes	70 21

MATERIAL DELIVERED 1ST JULY, 1872.

5450
Full quantity.
3172 Lineal feet.

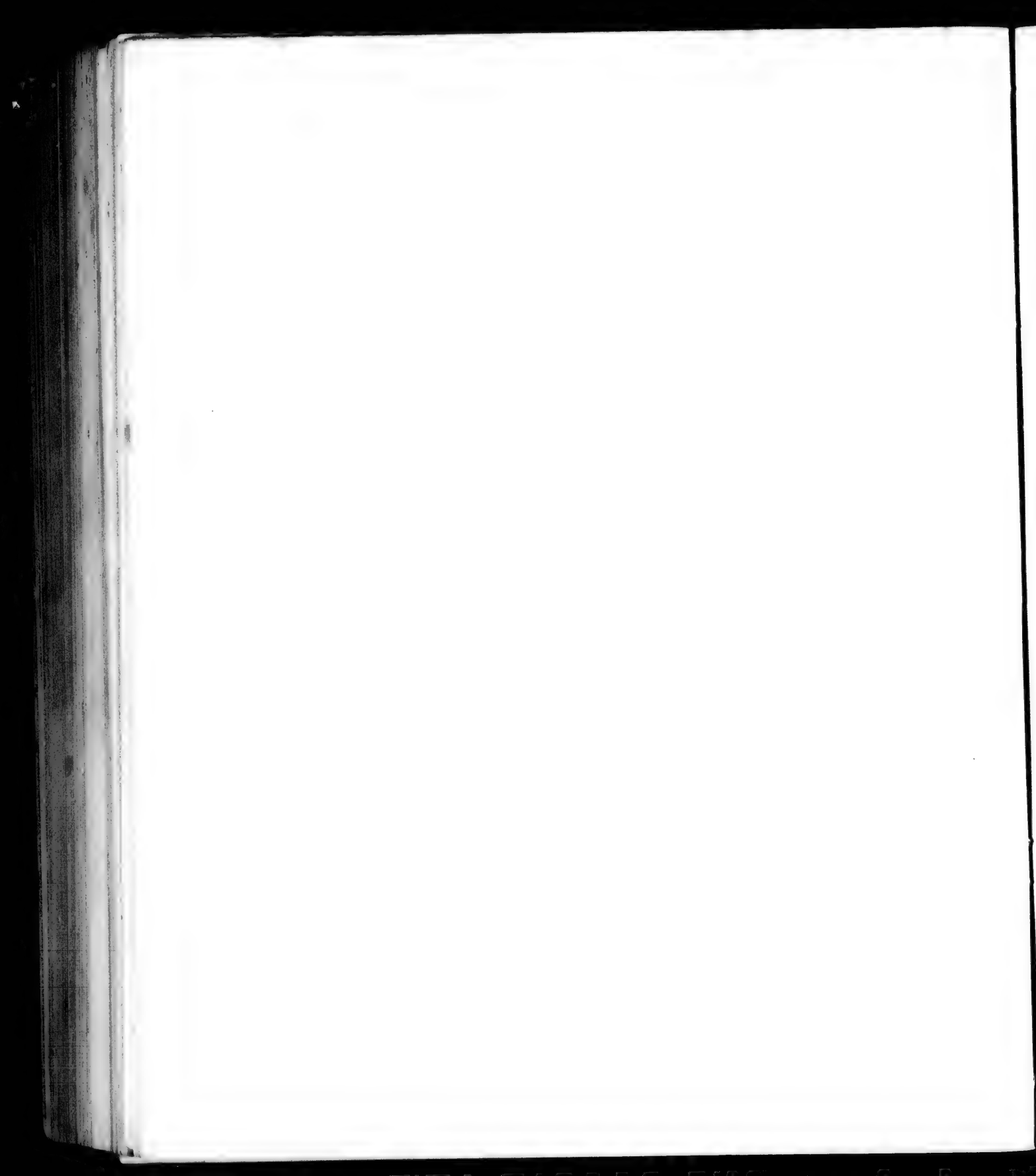
Cut Stone, Rough Stone.

W. G. THOMPSON.

APPENDIX Q.
APPROXIMATE ESTIMATE.
CONTRACT No. 9.—Division M.

Quantities.	Class of Work.	Rate.	Amount.
		\$ cts.	\$ cts.
243	Acres—Clearing and close cutting.....	12 00	3396 00
26	" Grubbing.....	96 00	2496 00
227500	Lineal feet.—Fencing.....	0 05	11375 00
82000	Cubic yards.—Rock Excavation.....	0 84	68880 00
6000	" " Borrowing, Stat. 580 to 790..	0 50	30000 00
122000	" " Earth Excavation.....	0 14	59080 00
54000	Lineal feet.—Under-drains.....	10 00	540 00
800	Cubic yards.—Rip-rap.....	1 25	1000 00
300	" " Concrete.....	3 35	1005 00
6300	" " 1st class Masonry.....	11 00	69300 00
6700	" " 2nd " ".....	8 50	56950 00
880	" " Paving.....	3 35	2948 00
	Foundations.....		3000 00
	Bridge Superstructure.....		5600 00
	Road crossings and diversions.....		4000 00
	Omissions and contingencies.....		30467 00
	Contract Sum.....		354897 00

Dalhousie, 7th July, 1870.

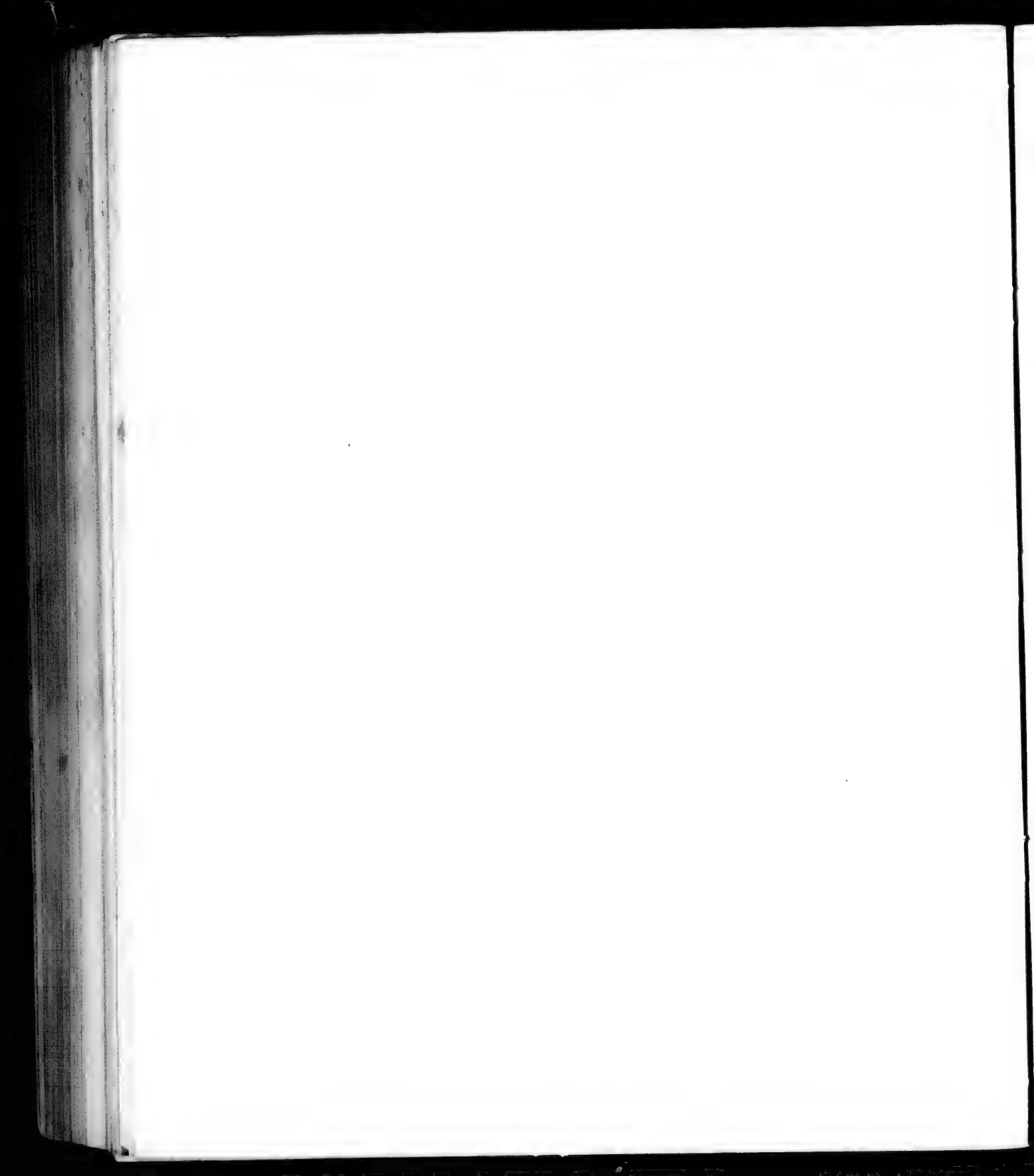


APPENDIX Q.—*Continued.*
APPROXIMATE ESTIMATE,
CONTRACT No. 15.—Division N.

2

Quantities.	Class of Work.	Rate	Amount.
		\$, cts.	\$, cts.
102	Acres.—Clearing and close cutting.....	13 00	1326 00
6	" " Grubbing.....	104 00	624 00
122000	Lineal feet.—Fencing (special).....	0 04	5140 00
6500	" " " (snake).....		
6500	Cubic yards.—Rock Excavation.....	0 83	5395 00
630000	" " Earth ".....	0 16	100800 00
15000	Lineal feet.—Under-drains.....	0 10	1500 00
750	Cubic yards.—Rip-rap.....	1 70	1275 00
600	" " Concrete.....	3 50	2100 00
12100	" " 1st class Masonry.....	11 00	133100 00
4000	" " 2nd " ".....	8 00	32000 00
700	" " Paving.....	3 50	2450 00
	Foundations.....		2500 00
	Bridge Superstructure.....		37000 00
	Road Crossings and Diversions.....		5000 00
	Omissions and contingencies.....		33310 00
	Contract Sum.....		363520 00

Halifax, 20th July, 1870.



APPENDIX Q.

3

APPROXIMATE ESTIMATE.

CONTRACT No. 9.—Revised Quantities.—Division M.—July 1872.

Quantities.	Class of work.	Rate.	Amount.
		\$. cts.	\$. cts.
500	Acres.—Clearing &c.....	16 00	8000 00
255000	Lineal feet.—Fencing	5 00	11250 00
66960	Cubic yards —Rock Excavation.....	1 00	66960 00
403305	“ “ Earth “	0 25	100826 25
57615	“ “ Rock Borrowing and long hauls.....	0 50	28807 50
6500	Lineal feet.—Under-drains.....	11 00	715 00
1200	Cubic yards.—Rip-rap.....	2 00	2400 00
100	“ “ Concrete.....	5 00	500 00
3516	“ “ 1st class Masonry	14 00	49224 00
3684	“ “ 2nd “	11 00	40524 00
898	“ “ Paving.....	6 00	5388 00
	Foundations		500 00
	Bridge superstructure.....		4320 00
	Beam Culverts, 227 linl. ft. @ \$3.....		681 00
	Road Crossings and Diversions :		6775 00
	25 Public roads, @ \$130.....	3250	
	45 Double Farm @ \$65.....	2925	
	12 Single “ @ \$50.....	600	
	Special Works :		
	Tunnel at Armstrong's Brook,		
	186 lineal feet @ \$30.....	5580	
	460 Cubic yards Masonry @ \$14.....	6440	
	Omissions and contingencies 5 p. c. \$16948		
	Contract Sum.....		354897 00

APPENDIX Q.—Continued.
APPROXIMATE ESTIMATE.

4

CONTRACT No. 15.—Revised Quantities.—Division N—February 1872.

Quantities.	Class of Work.	Rate.	Amount.
		\$. cts.	\$. cts.
152	Acres.—Clearing, &c.....	13 00	1976 00
128500	Lineal feet.—Fencing.....	5 00	6425 00
6472	Cubic yards.—Rock Excavation.....	0 90	5824 80
628000	" " Earth ".....	0 17	106760 00
13500	Lineal feet.—Under-drains.....	10 00	1350 00
730	Cubic yards.—Rip-rap.....	2 00	1460 00
500	" " Concrete.....	5 00	2500 00
9646	" " 1st class Masonry.....	14 00	135044 00
3423	" " 2nd class Masonry.....	9 00	30807 00
588	" " Paving.....	5 00	2940 00
	Foundations.....		3000 00
	Bridge Superstructure.....		42500 00
	6 Over Bridges, 650 linl. feet @ \$8 5200		5260 00
	Beam Culverts.—20 Linl ft. @ \$3 60		
	Road Crossings and Diversions :		3290 00
	7 Public roads @ 130..... 910		
	31 Farm roads, double @ 40..... 1240		
	38 " " single @ 30..... 1140		
	Omissions and contingencies 5 p. c.. 17456	Say	14383 20
	Contract Sum.....		363520 00

APPROXIMATE ESTIMATE.

Contract No. 9.—Adjusted Schedule.—Division M.—1st September, 1872.

Quantities	Class of Work.	Rate.		Amount.	
		\$	cts.	\$	cts.
500	Clearing and close cutting, &c.....Acres.	16	00	8000	00
225000	Fencing.....Lineal feet	0	07	15750	00
63974	Rock Excavation.....Cubic yds.	1	00	65974	00
377794	Earth do....."	0	27	102004	38
53972	do do longhauls....."	0	45	24287	40
6500	Under-drains.....Lineal feet.	0	12	780	00
1200	Rip-rap.....Cubic yds.	3	00	3600	00
	Concrete....."				
2613	1st class Masonry....."	14	00	36582	00
4547	2nd "....."	11	50	51945	50
690	Paving....."	6	00	4140	00
	Foundations....."			500	00
	Bridge Superstructure....."			4820	00
	" " Beam culverts....."			681	00
	Road Crossings and Diversions....."			6775	00
	Special Works....."			12000	00
	Omissions and Contingencies....."	Say.		17557	72
	Contract Sum.....			354897	00

APPENDIX R.

SPECIFICATION

*To accompany General Plan of Bridges and Culverts
for the passage of water under the approaches of
Public and Farm Crossings, on the rail level.*

No. 1. This is a general drawing of a bridge constructed mainly of undressed cedar logs, over a broad ditch, and for a high embankment, requiring abutments 18 feet long, so as to include the whole of the slope at an inclination of $1\frac{1}{2}$ horizontal to 1 vertical.

Unless where the bottom of the ditch is very hard, there will be three or more sills sunk into the ground, till their upper side is level with the bottom of the ditch. Their lengths will be at least 4 feet greater than the clear opening left between the faces of the abutments, and they will be 12 inches diameter, flatted on the upper side.

The abutments generally for public roads and double farm crossings will be 20 feet wide to outside faces of longitudinal timbers (cross-ties a little longer), but when the ditch of a double farm crossing comes very near to the fence, the bridge should be at least 2 feet wider, or splayed at the end next the fence, to give easy access from each gate.

The length should be such as to fully include the slope of the embankment at $1\frac{1}{2}$ to 1 (in this case 18 feet). The abutments for this length will each have three tiers of longitudinals, and three tiers of cross-ties, of rough cedar logs not less than eight inches diameter at the small end; they will be notched to not more than a quarter of their diameter, and so as to fit neatly together.

At the faces of the abutments, the timbers will be fastened together by pins of cedar or tamarac 2 inches diameter.

The second course of longitudinal timbers (from the bottom) will be carried across the opening for water-way and the two abutments, to prevent the latter from being pressed forward by the embankment of earth behind them. If there is a large body of water to pass through, then the third course may be carried across instead of the second.

The ends of the longitudinals that do not extend to the middle tire of cross ties will be let into the solid ground (slopes of ditch), at least to a length of two feet, as shown by dotted lines on the elevation.

There will be five stringers of a length, extending at least one foot beyond the top of the slope, at the back of each abutment; they will be slightly flatted at the top, and not less than 12 inches deep over the opening for waterway.

The stringers may be in two or three lengths, with butt joints requiring extra cross-ties, as shown on the drawing. If in two lengths, then the butt-joint should be on each side of the water-way alternately.

The stringers will be laid parallel to the inclination of the approach by adding an extra cross-tie at the back of one abutment, and putting in one less at the back of the other abutment, as shown on drawing, and at the faces of the abutments by using cross-ties of different diameters.

The stringers will be fastened down to the abutments by pins of tamarac or cedar two inches in diameter.

The stringers will be covered by cedar logs six inches in diameter at the smaller ends, laid close together, so as to hold a covering of earth and gravel 12 inches deep at the centre, and rounded off to 8 inches deep at the sides.

The floor timbers will be flatted slightly on the top to a uniform line, and a curb or guard log 10 inches wide by 8 inches deep (ranging vertically with outside of stringers) will be fastened with pins of cedar or tamarac 2 inches diameter, going down through the floor timbers, and at least 6 inches into the stringers, at intervals of 6 feet, and near to where the fence posts will be placed.

When the height of a bridge at a public road crossing exceeds 6 feet from the bottom of the ditch, there will be a post and rail fence on each side to stand four feet high above the top of the guard-log. The posts will be set 6 feet apart; they will be about 4 ft. 6 in. long, by 5 in. x 4 in., and will be checked on to the guard-log $1\frac{1}{2}$ inches, and each post fastened by two spikes 7 inches long.

Each alternate post will be strengthened by a strut framed into the post at one end, and to a floor timber (extended for that purpose) at the other, as shown on the drawing, and well secured by nails.

The top rail will be 5 inches by 4 inches, and of a length to cover two posts at least.

The posts and rail will be framed together by a tenon on each post 3 inches long, and a mortice in the rail of corresponding size, and secured by a pin $\frac{3}{4}$ inch in diameter.

The top rail will break joint by a half lap on the top of a post, and be secured by spikes. It will be rounded on the upper side, or the upper corners chamfered.

A board or flat rail 8 inches wide and $1\frac{1}{2}$ inches thick will be let into the posts on the inside to a depth of $\frac{3}{4}$ of an inch, and fastened by at least two nails, of proper length, to each post. The lower edge of this rail will be about one foot above the top of curb or guard-log.

There will be a guard-log, but no fence, on bridges at farm crossings, unless the bridge is very high.

When the approach embankment is higher than shown on the drawing, so that the slope would be more than 18 feet but under 24 feet in horizontal length, the *stringers only* may be extended to the requisite length and supported on a sill set into the embankment, as shown on drawing No. 2; but in this case the embankment would have to be thoroughly subsided before the bridge could be finished.

The best way to adopt this kind of bridge to a very high embankment is, to make three openings (one for the water-way) and two piers at each side instead of one abutment. These piers to be 9 feet thick, and with two tiers of cross-ties each.

Low embankments require shorter abutments, and two tiers of cross-ties would be enough. In other respects they would be constructed as above.

1

No. 2.—This is a general drawing for a bridge, placed under similar circumstances to that above described, and may be adopted instead of that of Drawing No. 1. It requires much less timber, but a little more skill in framing.

Where the ground is not very hard in the bottom of the ditch or water-way, there will be 4 sills of cedar flatted on the upper side, of the same dimensions, and sunk into the ground in the manner as specified for drawing No. 1. Each sill will be directly under a post of the bent.

Instead of abutments, as in No. 1, the superstructure of this bridge will be supported on bents placed not more than 10 feet apart from centre to centre (except over the water-way, where they may be 12 feet apart, with stringers of extra depth).

Each bent will consist of 4 posts of round cedar logs of the requisite length, and 9 inches diameter. They will be framed with a tenon at each end (about 5 inches by 3 inches, and 6 inches long), and pinned into corresponding mortices in the caps and sills, which will be of cedar logs flatted on the top and bottom; the caps will be 22 feet long and 10 inches deep from face to face; the sills will be 24 feet long and 8 to 10 inches deep from face to face.

Each bent will have 2 diagonal braces of sound cedar logs, not less than 6 inches diameter, framed with a short tenon into the upper angle of the outside post and cap at one end and into the lower angle of the post and sill at the other end.

There may be any number of bents so as to fully cover the horizontal length of the slopes. In this drawing, there are two bents on each side of the ditch with the ends of the stringers resting on a sill let into the embankment, but this is practicable only when the embankment consists of rock or gravel, or otherwise when the material has had time to subside and is consolidated. It is better in most cases to place another bent at each end of the bridge, as shown by dotted lines on the drawing, it will cost but little more, if anything.

Temporary diagonal braces should be put in between the bents to keep them in their true position while the embankment is being made, and until it is consolidated.

There will be 5 stringers of cedar logs flatted on the top and bottom sides. They will be 12 inches deep; they will be checked on to the caps of the bents one inch; they will be fastened down with pins of tamarac or cedar $1\frac{1}{2}$ inches diameter.

Joints in the outside stringers will be scarfed as shown in the drawing, and secured with spikes at the ends of the scarf. The inside stringers will not have scarfed joints, but they will be flattened on one side, and will pass each other over the bent and be cut off not less than one foot beyond the bent.

The rest of the superstructure will be exactly similar to that of No. 1, but for farm crossings generally there will be no fence or handrail at the side of the bridge, but only a guard-log, except in very high embankments.

No. 3.—This is a general drawing for a bridge constructed on the same principle as that of No. 2, but with less timber.

There will be only 3 ground sills required. They will be of the same dimensions as those of No. 2, and let into the ground in the same manner.

The bents will have only 3 posts each, of round cedar logs, but they should be from 9 inches to 12 inches diameter, according to their height. They will be framed with tenons at each end, pinned into caps and sills of the same dimensions, and in the same manner as specified in No. 2.

Each bent will have 4 diagonal braces of round cedar logs, 6 inches diameter, framed into the posts and caps, as shown in the drawing, and all secured with spikes.

The stringers will be of the same dimensions as those of No. 2, and they will be framed and the joints made in the same manner.

The flooring will consist of planks of cedar or tamarac 4 inches thick, laid close and fastened down with spikes (or trenails of oak or tamarac). There will be no covering of earth or gravel.

There will be guard-logs 10 inches by 8 inches, but no fence or hand-rail, except at public roads or at farm crossings where the embankment is very high.

In places where cedar is scarce the stringers, caps, braces and posts of these last two bridges may be of tamarac, or the stringers only of tamarac, and posts, caps and sills of Prince's pine.

No. 4.—This is a general drawing of a bridge for single farm crossings. It is constructed in every respect in the same manner and with timber of the same kind and dimensions as that of No. 1, but the abutments will be only 14 feet wide (giving clear roadway of 12 feet), as shown on the drawing. The cross-ties will be about 15 feet long.

There will be a guard-log on each side of the bridge, but no fence or hand-rail, except when the embankment is very high.

Wherever there is a fence on farm road crossings, the posts will be long enough to reach to the bottom of the stringers, and each post will be fastened with 3 spikes—2 into the guard-log and 1 into the stringer. The former should be jagged, as shown in the margin.

No. 5.—This is a general drawing of a bridge for a single farm crossing, that may be substituted for No. 4. It will be constructed in the same manner, and with timber of the same kind and dimensions as that of No. 2, except that the roadway being only 12 feet wide in the clear, the caps of the bents will be about 16 feet long, and the sills 18 feet. There will also be only 3 posts in each bent, and three ground sills under the same.

The braces of round cedar logs 6 inches diameter will be framed into the caps and posts, as shown in the drawing, and will be secured with spikes.

The same remark in regard to fence on No. 4 applies to this.

No. 6.—This is a general drawing of a bridge for low embankments. The bents will be framed as shown in the drawing.

The caps and sills will be of cedar logs flatted on the top and bottom, and not less than 8 inches deep from face to face. The caps for double farm crossings and public roads will be 22 feet long, and the sills 23 feet long.

The caps for single farm crossings will be 16 feet long, and the sills 17 feet long.

The posts will be of cedar logs 8 inches diameter, and of suitable lengths; they will be framed with a tenon at each end, and pinned into corresponding mortises in the caps and sills.

The bents for double farm crossings and public roads will have 4 posts each, and for single farm crossings 3 posts.

Each bent will have two diagonal braces of cedar logs of 6 inches diameter, framed with a short tenon at each end into corresponding mortises in the angles formed by the cap and post at one end, and sill and post at the other, in the position shown in the drawing.

There will be 5 stringers in double farm crossings and public roads,

and 4 stringers in single farm crossings. They will be of cedar or tamarac logs, slightly flatted on the top and bottom, and will be 12 inches deep. They will rest on one or more bents in the centre, and will be checked $1\frac{1}{2}$ inches on to the caps, and fastened down with $1\frac{1}{2}$ -inch pieces of tamarac.

The ends of the stringers will rest on one or more sills or wall plates of cedar, flatted on two sides, and pinned together.

If the stringers should be in more than one piece, the joints of the outside stringers will be scarfed as shown in drawing No. 2, and the inside stringers will be flatted near the ends on one side, and made to pass each other over the bent, and the ends shall extend at least one foot over the bent.

The stringers will be covered with cedar logs 6 inches diameter, laid close to support a covering of earth or gravel 12 inches deep at the centre, and rounded off to 8 inches at the sides. These will be flatted on the top at the ends.

Any guard-logs 10 inches diameter, flatted on the lower side, will be fastened down to the stringers with $1\frac{1}{2}$ -inch tamarac pins.

The length of the covering logs for double farm crossings and public roads will be 20 ft. 6 in., and for single farm crossings 15 feet.

No. 7.—This is a general drawing of a cedar log culvert for level crossings in cuttings or very low embankments; the opening may be from 1 ft. 6 in. square to any size required for the water-way.

The culvert will be constructed as shown on the drawing, with 4 or more sills flatted on two sides, and of length and dimensions to correspond with the size of the culvert. These sills will be let into the ground till their tops are flush with the water-bed.

On these sills will be built walls of cedar logs flatted on two sides, and from 9 inches to 14 inches diameter, according to the depth of the culvert; they will be fastened with $1\frac{1}{2}$ -inch or 2-inch pins of tamarac at intervals of not more than 6 feet, and these log walls will batter at the ends in the ratio of the slopes.

These walls will be covered with cross-caps of the dimensions to suit the span of the culvert, and they will be placed not more than 6 feet apart. Between these caps the spaces will be filled up by pieces of flatted logs, the same thickness as the caps, pinned to logs of the walls with their ends let into the caps in the manner shown in the margin.

These caps will be covered, as shown in the drawing, with cedar logs 6 inches diameter, laid close together, so as to support a covering of earth or gravel 12 inches deep in the centre, and rounded off to 8 inches at the sides of the roadway. These covering logs will be flatted at the ends, and guard-logs 10 inches diameter, flatted on the lower side, will be fastened with pins down into the caps.

The culvert may be covered in a simple and less expensive manner, and also more convenient when the depth is limited, by making the caps only 4 to 6 inches thick, according to the span of the culvert, and laying them close together so as to support the covering of earth or gravel. The ends will be secured by guard-logs, as in the other case.

This culvert may be used instead of bridge No. 6, up to an opening of 6 feet square; but pieces would be required across the opening and let into the log walls at least every 3 feet in height, to keep the walls from being forced together by the weight of earth behind them.

Whichever of these drawings may be adopted, the work will have to be done under the instructions of the Engineer in charge of the division,

and to his satisfaction; and he shall not allow any other kinds of timber to be used except these mentioned in the specifications above, or allow any of the dimensions to be altered without first consulting the District Engineer.

M. SMITH,

District Engineer.

SPECIFICATION for Cedar Log Fence, the Fence to be four feet six inches high, in panels fourteen feet long from centre of block to centre of block, and each panel to be built of five sound straight cedar logs sixteen feet long, and the smallest logs to be not less than six inches in diameter at the smallest end.

The sills to be five feet long, not less than eight inches in diameter, with a three-inch hole bored about one foot from each end, so that the stakes will be two feet six inches from centre to centre at the sills.

The caps to be two feet six inches long, and not less than five inches in diameter, with a three-inch hole bored near each end, so as to be one foot six inches from centre to centre of stakes.

The stakes to be made to fit the holes in the caps and sills tight, and driven into them at each end of the blocks. The top rail to be above the cap piece.

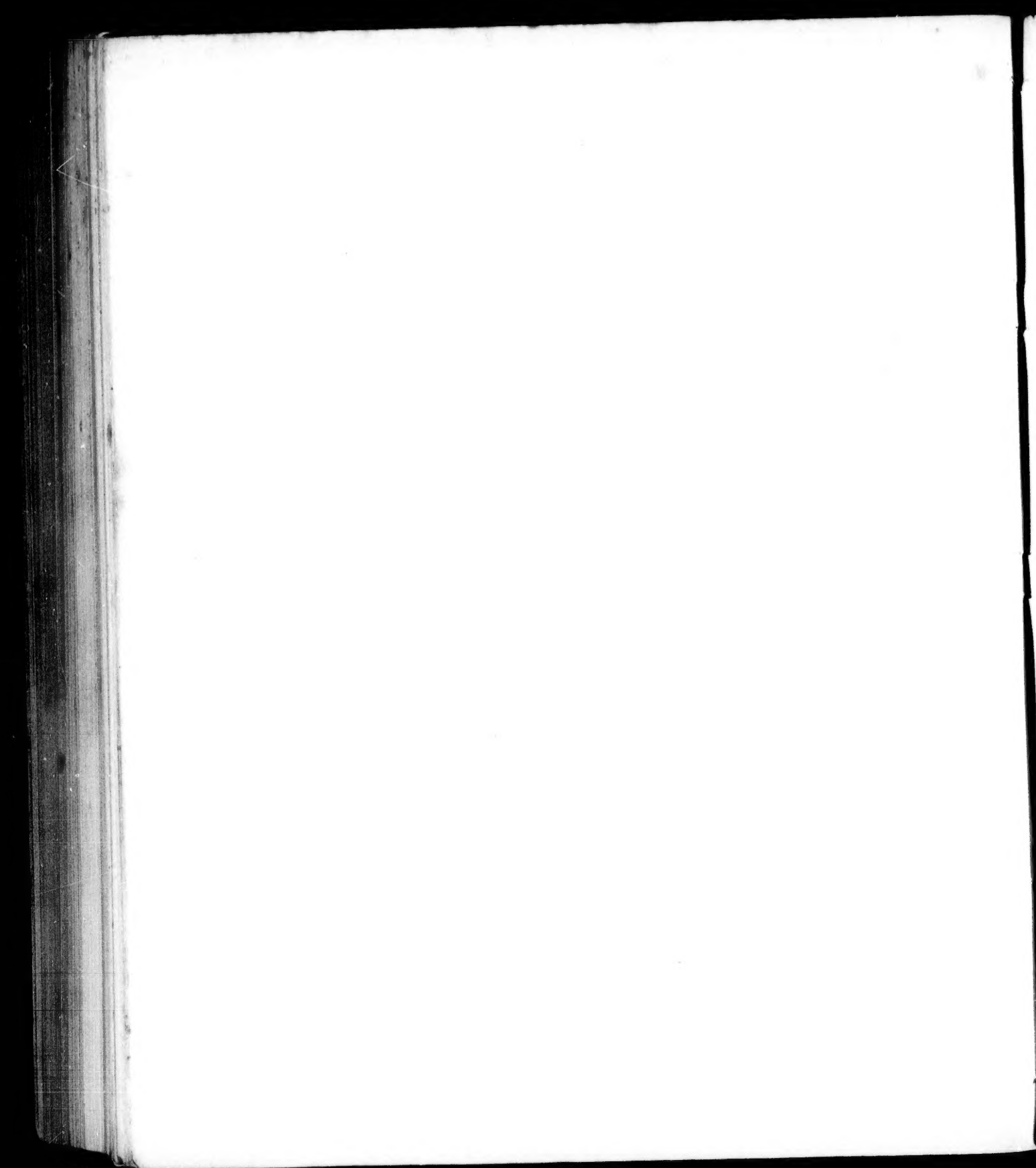
The sills to be sunk into the ground at least two inches, or as much more as will be necessary to allow them to rest on the solid ground from end to end.

The lower logs to be notched at least one inch deep on the lower sides, so as to lie solid on the sills, and the lower blocks to be notched on the lower sides at least one inch deep, so as to lie solid on the lower logs, and so on to the top rail, each rail and block being notched on the lower side only.

The blocks to be of round cedar, and cut with a bevel so as to fit tight between the stakes. No space to be left under the lower log, or between the lower, second and third logs, greater than four inches wide, nor between the third, fourth and fifth logs greater than eight inches wide.

The bark on the logs, sills, stakes and blocks to be "rossed" or stripped off not less than one inch wide, the whole length on the upper and lower side of each log, &c.

The whole to be built and finished in a substantial, workmanlike manner, to the satisfaction of the Engineer.



APPENDIX S.

OTTAWA, 31st May, 1871.

\$10,000.

Received from the Commissioners appointed for the Construction of the Intercolonial Railway, by Warrant on the Receiver General, the sum of Ten Thousand Dollars, being an advance on account of contract for Section No. 9, ordered by the Commissioners.
(In Duplicate,)

J. B. BERTRAND, and
F. X. BERTRAND.

By their Attorney,

(Signed,)

A. C. KELTY,
Manager.

CHAS. G. RITCHIE,
Witness.

OTTAWA, 31st May, 1871.

\$10,000.

Received from the Commissioners appointed for the Construction of the Intercolonial Railway, by Warrant on the Receiver General, the sum of Ten Thousand Dollars, being an advance on account of contract for Section No. 15, ordered by the Commissioners.
(In Duplicate,)

J. B. BERTRAND, and
F. X. BERTRAND.

Per their Attorney,

(Signed,)

A. C. KELTY,
Manager.

CHAS. G. RITCHIE,
Witness.

OTTAWA, 30th September, 1871.

\$25,000.

Received from the Commissioners appointed for the Construction of the Intercolonial Railway, by Warrant on the Hon. the Receiver General, the sum of Twenty-five Thousand dollars, being an advance on account of contract for Section No. 9, ordered by the Commissioners.
(In Duplicate,)

J. B. BERTRAND, and
F. X. BERTRAND.

By their Attorney,

(Signed,)

A. C. KELTY,
Manager.

CHAS. G. RITCHIE,
Witness.

OTTAWA, 30th September, 1871.

\$25,000.

Received from the Commissioners appointed for the Construction of the Intercolonial Railway, by Warrant on the Hon. Receiver General, the sum of Twenty-five Thousand Dollars, being an advance on account of contract for Section No. 15, ordered by the Commissioners.
(In Duplicate,)

J. B. BERTRAND, and
F. X. BERTRAND.

By their Attorney,

(Signed,)

A. C. KELTY,
Manager.

CHAS. G. RITCHIE,
Witness.